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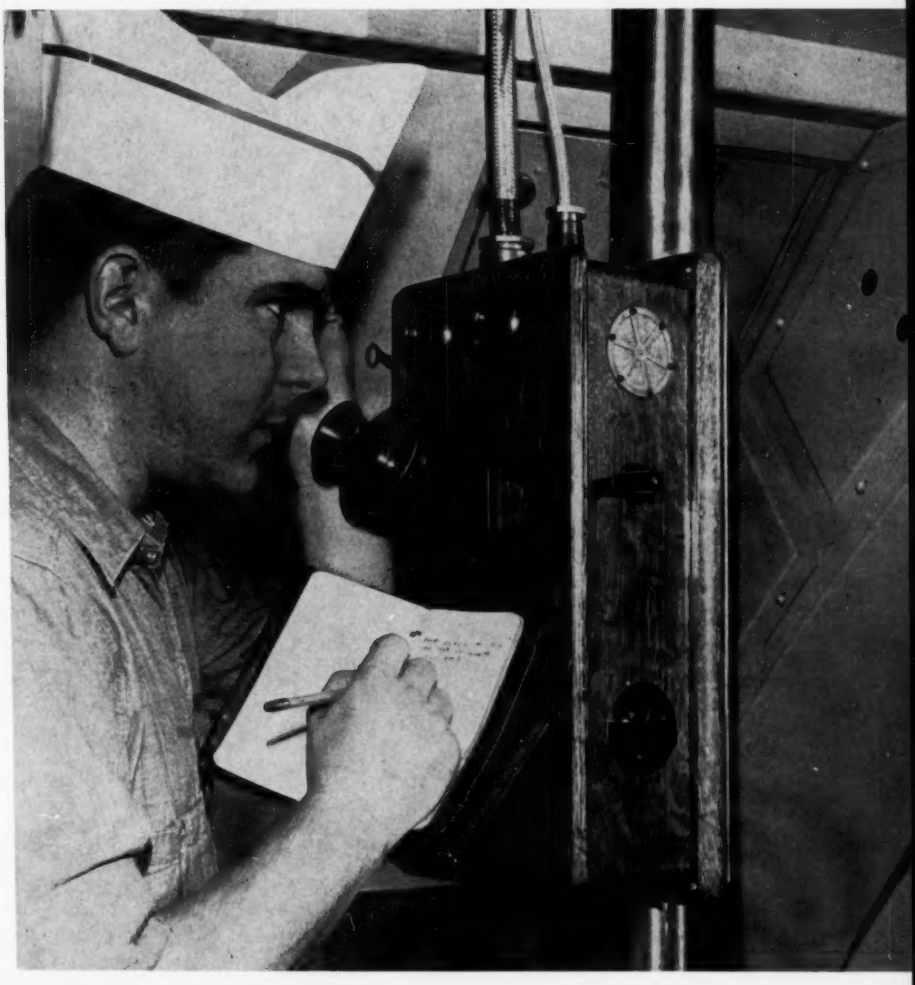
APRIL 29, 1961

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY



The nuclear-powered submarine USS Tullibee uses old magneto telephone as integral part of its internal communications system. A commissaryman checks menu for the day with the skipper. See page 37.

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MANAGEMENT · PLANT · TRAFFIC · COMMERCIAL · LEGAL · ACCOUNTING

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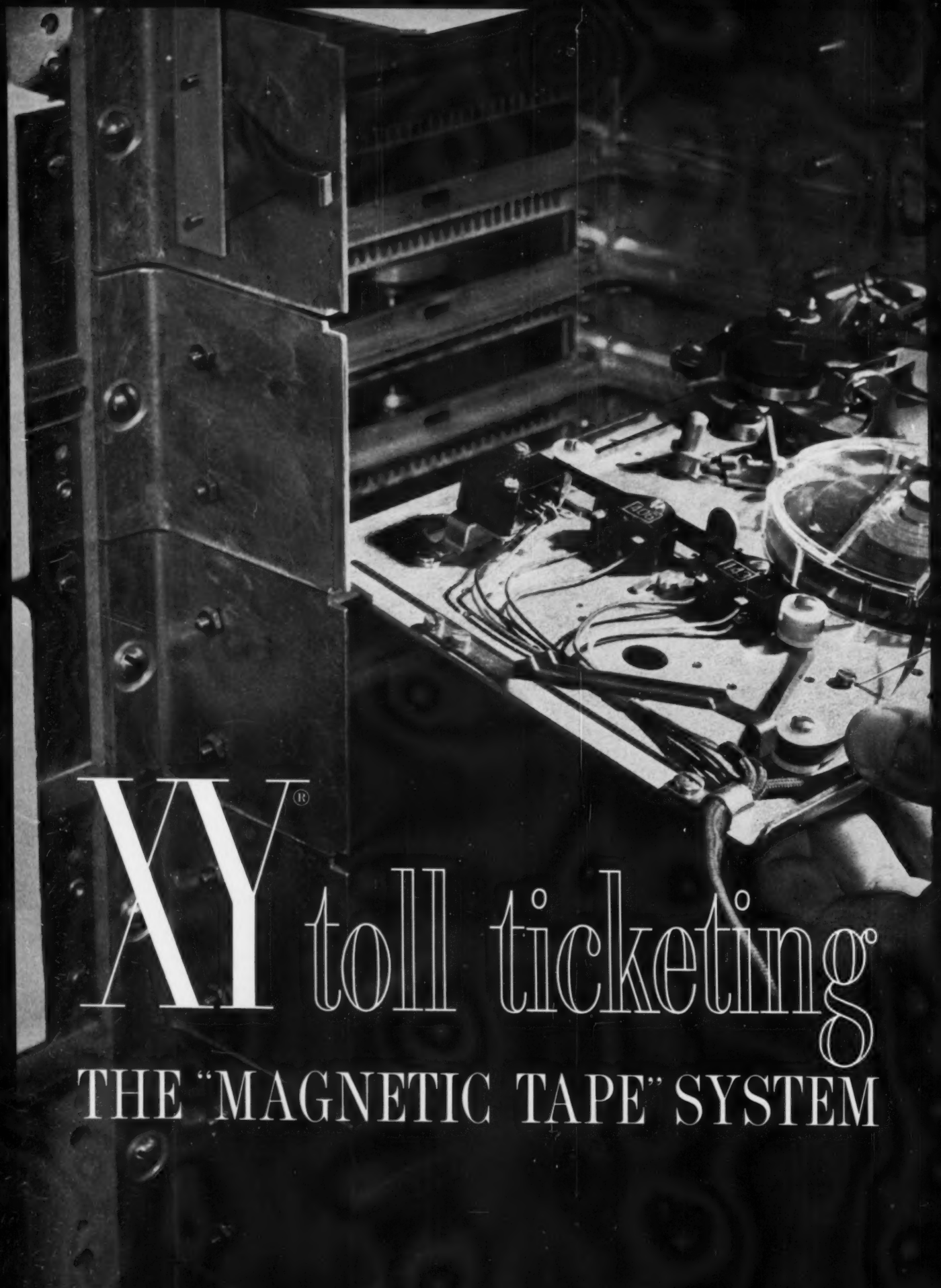

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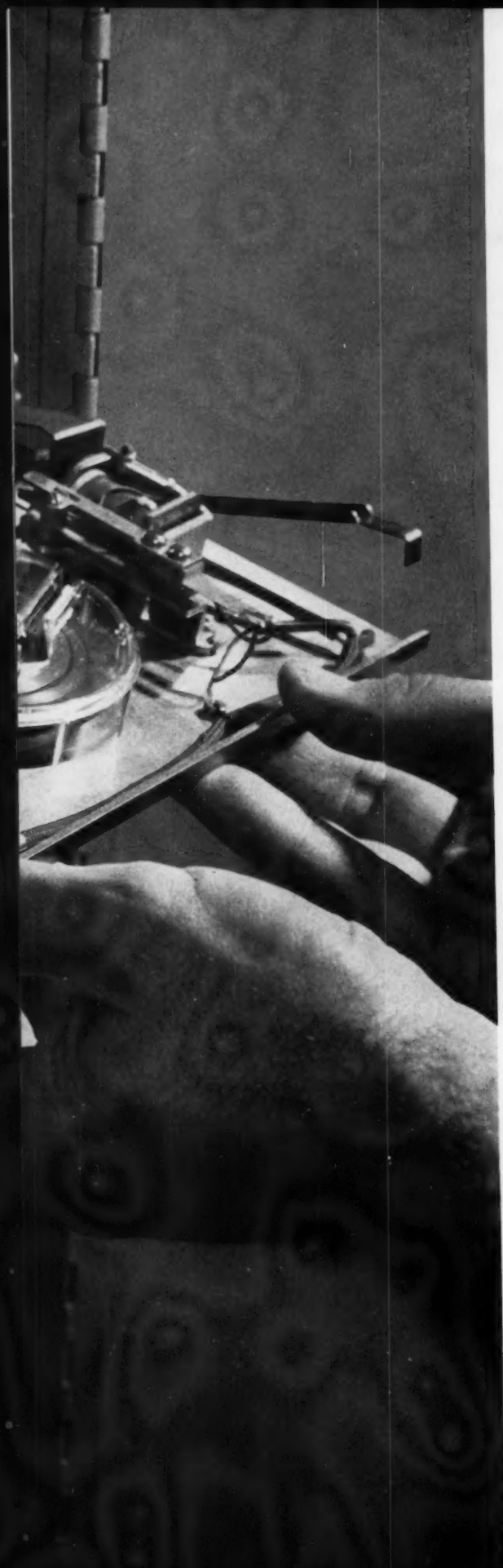

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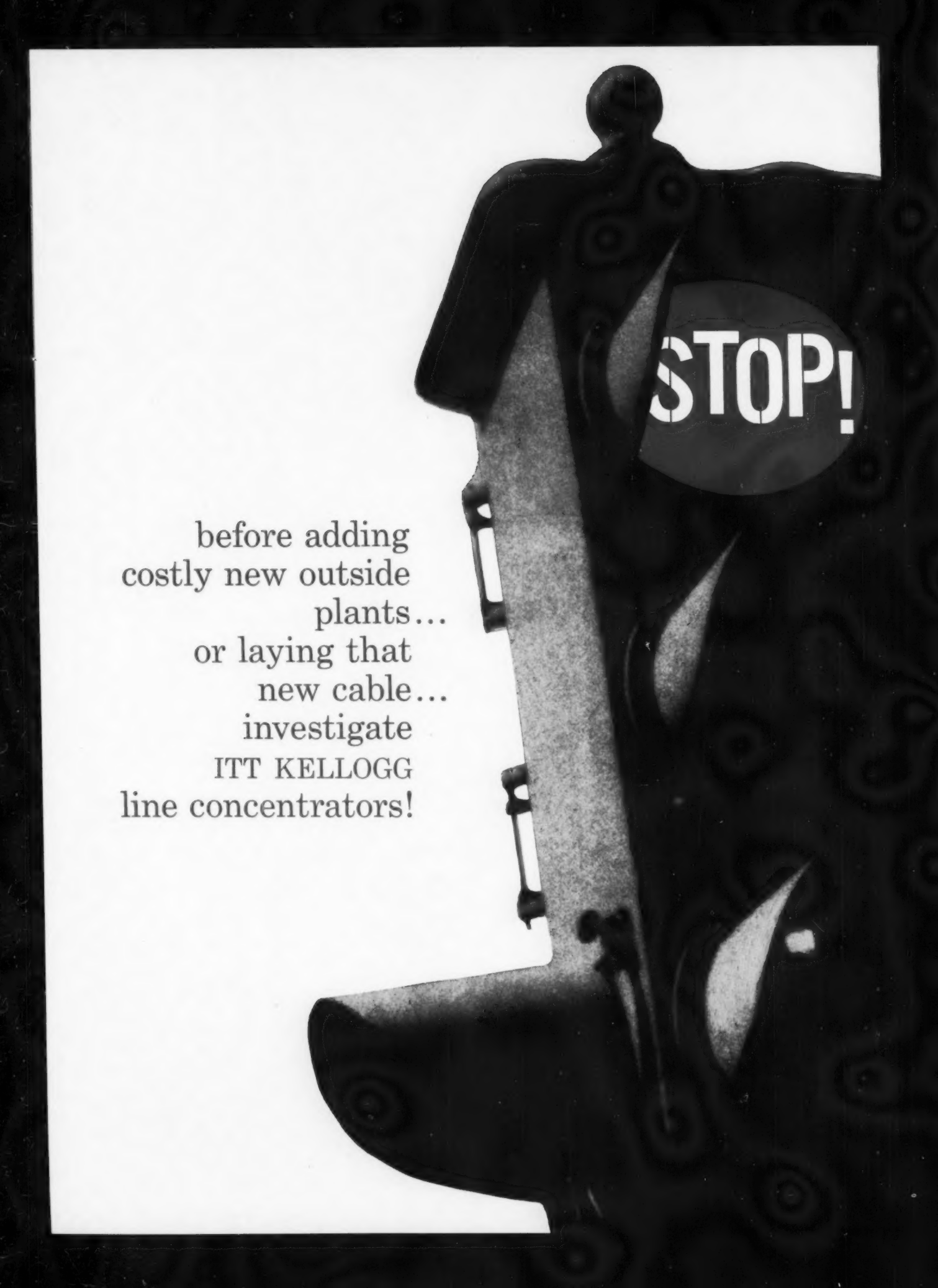

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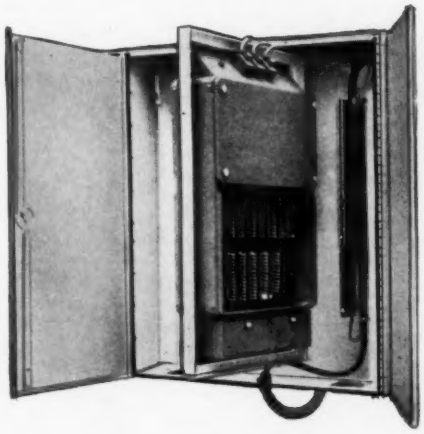

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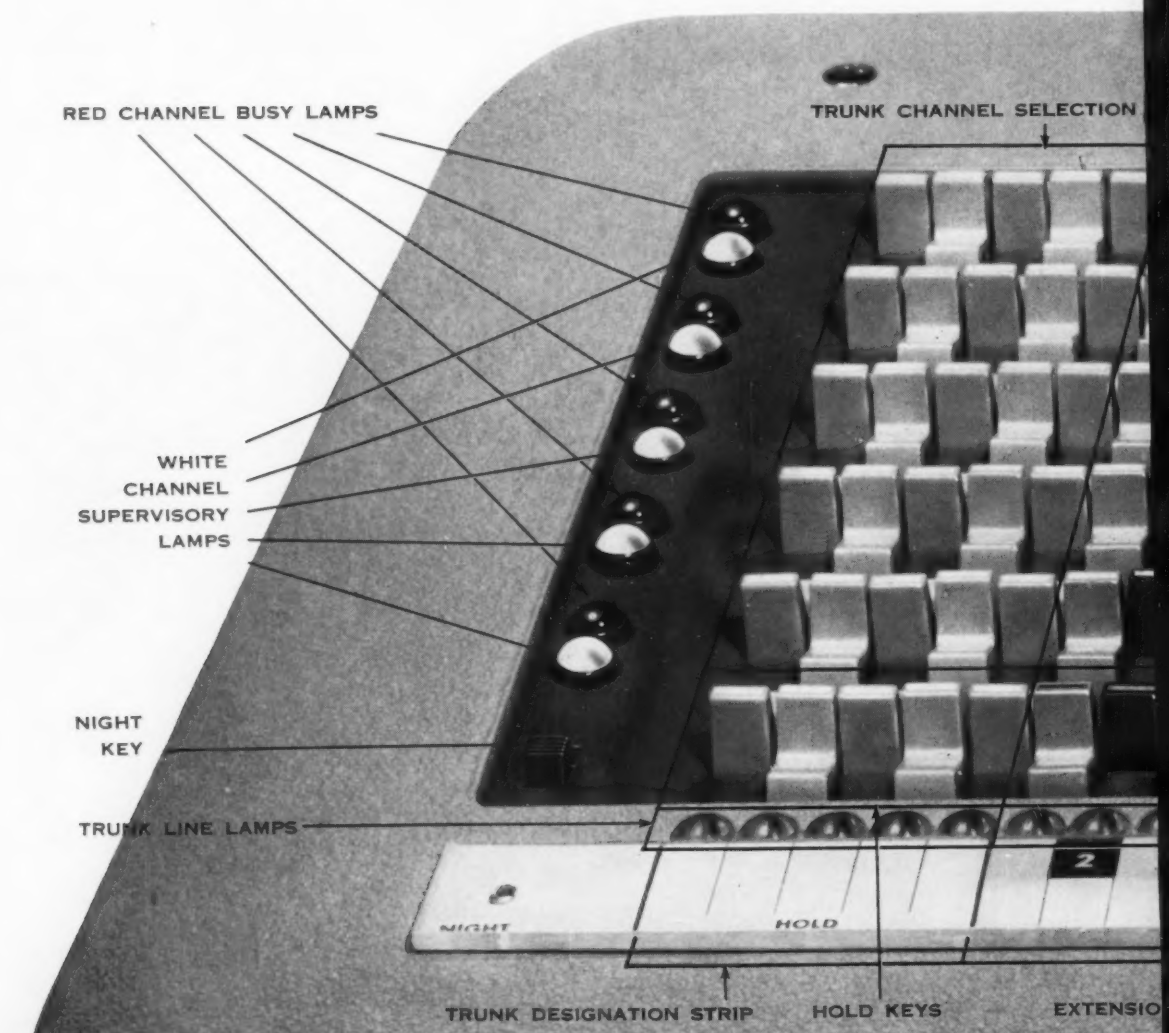

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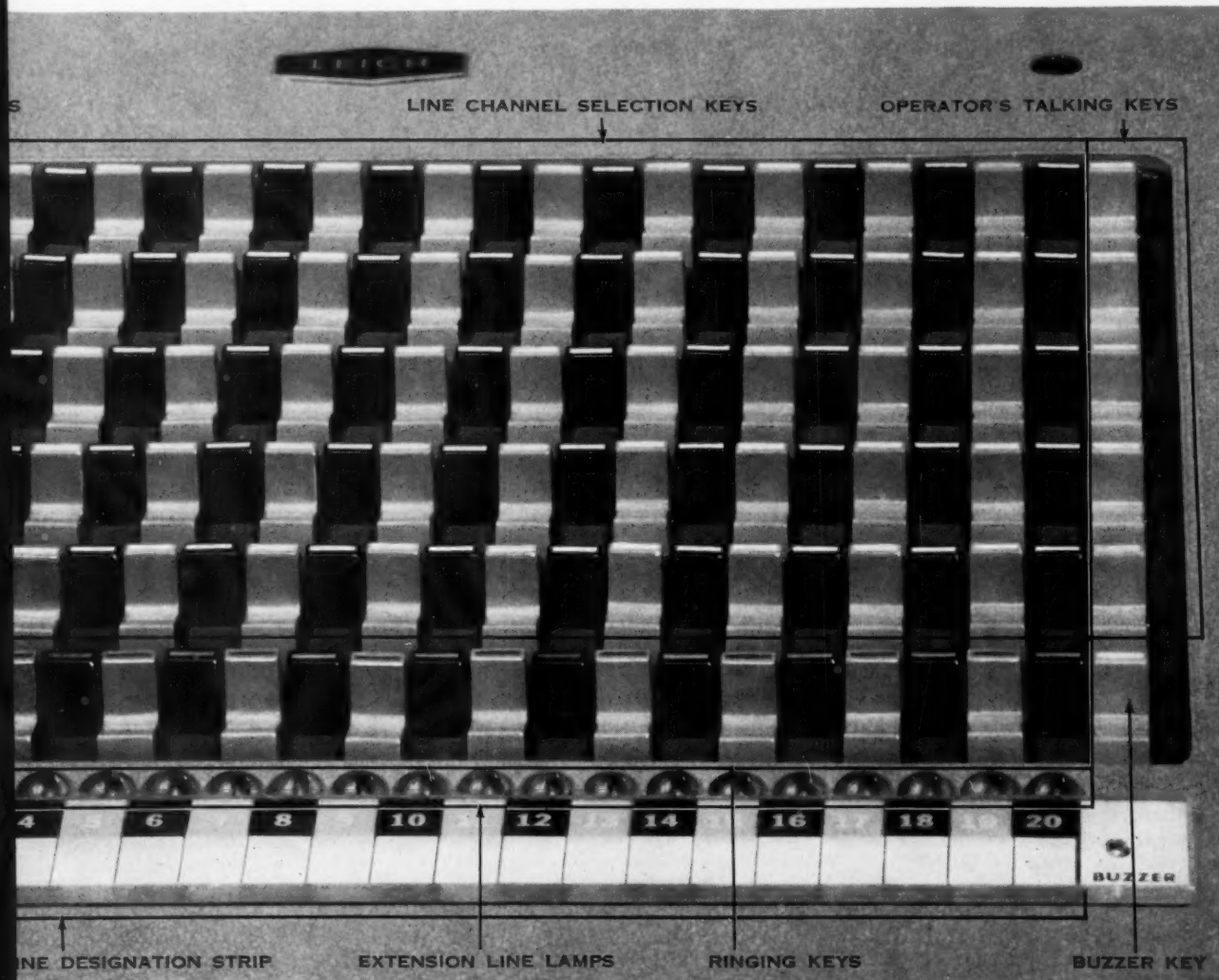
Excellent visibility, extreme simplicity, lightning-fast operation and modern compact size!

These spell switchboard efficiency to any subscriber. They mean reduced error and confusion, and the wide variety of operating features makes the LEICH CORDLESS PBX an infinitely flexible communications tool. Your subscriber can save time and give far better telephone service, both inside the office and on outside calls.

In dealing with his public, your business customer can help himself to a bonus in public relations through faster, more efficient telephone service — with the LEICH CORDLESS PBX. It's available in 20, 16 and 12 line capacities with 5 connecting circuits, and 5 central office trunks. Stock delivery on 20 and 12 line models.

Ask your LEICH representative for all the details.

Leich 20B Cordless PBX



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FLASHES AND PLUGS

WEDGE WAY IS OUT? Two McKeesport, Pa. girls, 15-year old Christian Duran and Peggy Woistman, recently wedged themselves into a telephone booth to share a call. Apparently tiring of their together-ness when they hung up, they tried to open the door of the booth but to no avail.

How to signal help? They waved to passersby, but people just thought they were two friendly teenagers. They waved back, and went on their way.

Finally, one of the two squeezed her hand into her purse, found a dime and telephoned the police. Officers were forced to remove the door to rescue the girls.

•

CHEERFUL EARFUL. "Good afternoon, Custom Tire, business is good."

That's the way the telephone is answered these days at Custom Tire, Inc., an automobile supply and retail tire business in Akron, O.

And business is good, says David Davis, store manager. "We've never been so busy as we have since we started this," Mr. Davis said.

As an example of the effectiveness of this positive approach, a man who was shopping for tires called, and he was so impressed by Custom's greeting, that he bought a set of four tires and told the firm it was strictly because of the telephone answering.

Davis said he got the idea after listening to a speaker at a Goodyear dealer meeting tell how tired he was of hearing such dreary reports on the nation's economy.

"It's part of our business philosophy," Davis said. "Too many people are wasting their time wringing their hands and complaining about business. Business is as good as you make it, and it's never been so good."

And that's all he had time to say. He was too busy with customers.

•

"JUST" AN UNDERSTATEMENT. Many a switchboard operator goes unsung, but in Rochester, N. Y., a young college sophomore, Gerald Locklin, is reported to have set quite a record while working at a board five hours a day to help pay for his education.

Young Locklin, whose home is in Rochester, attends John Fisher College. He took nine courses in one semester, and netted nine A's.

Of course, he does a few other things also, such as editing the college literary magazine and playing leads in school plays. In high school, he was a star athlete in football, basketball and track.

To astonished admirers, Locklin's reply is, "I just try to do my best."

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Please notify your local postmaster and the Circulation Department of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

April 29, 1961

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H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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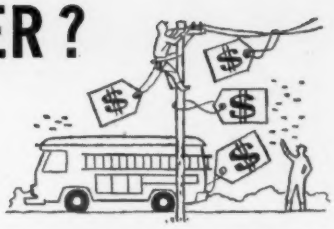
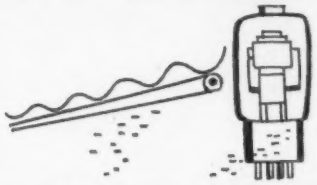
WHY AREN'T YOU USING CARRIER?



Outside plant... poles, wire, cable and construction... have long been a major cost to operating telephone companies.

The possibility of transmitting modulated frequency impulses over wire, adding to that wire's transmission capacity, became potentially practical with the development of the vacuum tube. Such a possibility would enable operating companies to increase traffic handling capacities and to provide additional stations without adding outside plant facilities!



Toward that goal, Carrier has been developed over the years, until today it is eminently practical for any and every company faced with the problem of providing extended service and additional stations without installing costly additional physical lines.

Since Carrier is essentially a form of radio, many operating companies, while knowing of their need for Carrier, have been hesitant to employ a tranmission medium that seems less understandable than ordinary physical lines.

In the development of North Electric Carrier, engineers who know the economic and technical requirements of the independent industry, have been most successful in achieving a dual goal.

North Electric Carrier today is economical...both in initial cost and in operation.

North Electric Carrier today is simple and efficient...it has been refined to basic principles of operation and to quick and easy maintainability.

To make it even more practical to install and use Carrier, North Electric will train your personnel so that Carrier becomes no more mysterious than the most familiar equipment.

North Electric Carrier can bring new revenues, new efficiencies, new standards of service to your Company's operation. Ask your North Electric representative to give you the latest facts on the most economical, most practical Carrier equipment... engineered and manufactured by...

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WITH HIGH DIELECTRIC STRENGTH, OFFSET YOKE *

One-step entry into the bucket at the rear of the truck is possible because of the offset yoke*.

*Patents applied for.

You save time right from the word "go" with the new Holan LD-40 Elbow. One step and you're in the easy-entry bucket. And one man controls every movement of the Elbow.

Ideal for re-fusing transformers, mid-span trouble work, installing customer service, insulator inspection, street light maintenance, telephone drop installations from mid-span — even maintenance of railroad catenary systems.

The exclusive offset yoke* not only facilitates bucket entry — *it increases versatility and working range.* Angle of the yoke — coupled with 90° lower arm, 135° upper arm travel — permits work over parked cars, over and between power and telephone lines, and on the property side of the pole. It reaches up 40', rotates 360° continuously in either direction.

It's safe, too. The molded fiberglass reinforced plastic bucket, yoke and upper arm can withstand a bucket-to-ground dielectric test in excess of 100,000 volts (A.C.).

Torsion bars and the reverse offset superstructure design eliminates stabilizing outriggers.

Want more details on this light-duty Elbow? Just call your Holan Field Representative . . . or write us.

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He and his wife make their home there now with their four sons and two daughters. Six children keep him busy but when he does find a free moment or two he works for the Cub Scouts, the P.T.A., and the Community Fund.

Ray Wilson is another example of the "Revenue Men" who work for the General Telephone Directory Company—who work for you, who are an asset to any community in which they live.

Are you keeping pace with the trend of increased directory revenue? The potential is enormous. You can't afford *not* to keep pace.

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May we show you a plan tailored to fit your needs? No obligation, of course. Just call or write.

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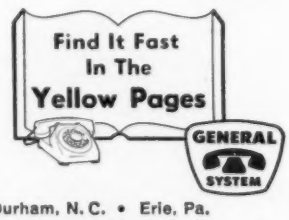

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Senate passes administration's wage-hour bill which changes basis for telephone operator exemption. . . . Final bill, if any, will be written in conference between Senate and House committees. Kennedy asks for continuation of excise taxes, including telephone.

ON APR. 20, the Senate, by a vote of 65 to 28, passed the minimum wage bill substantially in the form recommended by the White House. In effect, this bill is about the same as the old Kennedy Bill in the last Congress when its sponsor, who is now in the White House, was then a senator from Massachusetts. Among other things it would confine the present exemption from minimum wage requirements of telephone operators at exchanges of less than 750 stations to Independent telephone companies having total stations below that number.

The main feature of the bill would raise the hourly wage from $1.00 to $1.25 over a period of 28 months and extend coverage of the bill to four million workers not now covered under present law.

The bill already approved by the House is an entirely different deal. It limits the wage increase to $1.15 and the additional coverage to 1.3 million workers. The House bill also makes no change whatever with respect to the telephone operators' wage exemption.

This means that the real law—if there is a law finally enacted at this session—will be written in the conference between the two houses. So, the membership of the conference committee becomes quite important. House Speaker Rayburn, who is on record as favoring the Kennedy Bill, could theoretically use his influence to send into the conference, as representatives of the House, members who would not stand up resolutely for the House version. The Senate, of course, will send members to the conference who are very strong for the Kennedy Bill except for the minority (Republican) senators.

Actually, however, the way these things are done on Capitol Hill, the House stands a pretty good chance of getting some concessions. By tradition, Speaker Rayburn must name members from the House Labor Committee and they are the ones principally responsible for the watered down version of the bill which the House passed.

As a result of this impasse looming in the conference committee, almost anything could happen. The telephone operators' exemption, for example, is relatively unimportant compared with other more national features of the bill. Sometimes in such situations the conferees will make a concession on a less important item as an offset to getting a concession on a more important item. This sort of bargaining or horse trading goes on all the time in conference committees. So, it is at least possible that the telephone operators' wage exemption could survive unchanged. But if it did it would be just a fluke.

Another possibility is that the conference will simply fail to agree and there would be no legislation at all. That is what happened at the last session of Congress, but it is less likely to happen at this session of Congress for two reasons: (1) The bill has an earlier start and is, therefore, not threatened by a last-minute log jam; (2) the Democratic majority has greater strength in Congress in addition to having control of the White House.

So, the chances are much more in favor of some kind of a law finally enacted. It will be something less than the Senate bill and more than the House bill. It may be that the Senate will trade $1.25 for extended coverage. Or it may be that the House will surrender extended coverage in return for $1.15 minimum. It will be up to the best bargainers in the conference.

Kennedy Seeks Excise Renewal

As predicted in this department, and generally expected just about everywhere, President Kennedy has asked Congress to extend the 10 per cent excise tax on telephone bills, which would otherwise expire June 30. He made this recommendation along with a number of other proposals for "urgent and obvious tax adjustments" in a 7,000-word message, which he called "a first though urgent step along the road to constructive tax reform."

Considering the need for complete overhauling of the much patched up Internal Revenue Act, the President's suggestion constituted a mighty short step. But with everything else on his mind and all the international and domestic problems demanding pressing attention, the President could certainly be excused from any more thorough statutory housecleaning at this time.

The President's over-all proposals were contained in a nine-point program covering the following topics:

(1) A tax incentive plan to encourage business to expand plant and other operations to create more jobs.

(2) A crackdown on so-called "champagne and caviar" deductions as business expenses in tax returns.

(3) Repeal of the $50 exemption and 4 per cent tax credit on dividends reported as taxable income, plus the inauguration of a new policy of withholding 20 per cent on all dividends and interest paid.

(4) Elimination of tax loopholes arising from income earned by the United States' citizens living in foreign countries, and taxing income of foreign companies doing business in the United States on the same basis as our own business taxpayers.

(5) Renew the present corporate tax rate of 52 per cent on taxable business income and cancel the expiration of excise taxes which expire June 30. Here is where the 10 per cent telephone excise tax comes in. The President's message gave no further explanation about his request on this except to point out that the nation is sorely in need of tax revenues which nobody will deny. Along with the telephone excise taxes, there are also other excise taxes which would go off the books on June 30 unless they are continued by Congress. These include taxes on whisky, wines, beer, cigarettes, automobiles and auto parts and accessories, interstate passenger transportation by plane, train, and other common carriers. They all add up to about 3 billion dollars a year and the President said "we cannot afford the loss of these revenues at this time."

(6) Adjust the disallowance of capital gains taxes on the sale of property (real or personal) for which deduction for depreciation has already been taken. This little loophole is estimated likely to produce an additional 200 million dollars for Uncle Sam, if Congress agrees.

(7) Now hear this! Tax all earnings of cooperatives, private lending institutions, fire and casualty insurance companies. Businessmen generally will approve this elimination of a long-standing tax inequity. But your correspondent is willing to bet that Congress will not go along with the President on this. The co-op lobby is too strong in Washington.

(8) Provide the appropriation for more revenue agents to check up on tax evaders and other tax collection defrauds. The President said that 27.4 million dollars would hire 3,500 new agents, and that he was further requesting an additional 7 million dollars to hire 765 new agents. This would make a total addition to the Internal Revenue force of 4,265. The story here is that the Treasury's long experience, regardless of what administration was in office, indicates that every revenue agent hired brings back to the Treasury many times his salary in more tax collections. However, Congress may cut the President's request on this point. The House of Representatives recently acted on appropriations for the Internal Revenue Service and allowed money for an additional 2,000 agents, more or less.

(9) A boost in the tax on aviation fuel to equalize it with the tax now being paid on gasoline. It seems that piston airplanes which use aviation gasoline result in a two-cent tax whereas jet airplanes using other fuels have had a tax advantage. The President also asked for an annual boost of one-half cent per gallon on aviation gasoline after 1962 to help defray the cost of airways.

Tax Suggestions of Interest

Out of this entire message, telephone companies probably will be interested in at least three of the nine points. Those dealing with continuing the excise taxes, the proposed tax incentive plan, and the proposed tax on cooperative income. The business incentive plan which President Kennedy recommended calls for a tax credit plan for: Allowing a tax credit of 15 per cent of all new plant and equipment investment expenditure in excess of current depreciation allowance; 6 per cent of expenditures below this level, but in excess of 50 per cent of depreciation allowances, with 10 per cent of the first $5,000 as a minimum credit.

"This credit," Kennedy said, "would be taken as an offset against the firm's tax liability, up to an over-all limitation of 30 per cent on the reduction of that liability in any one year." This incentive plan would be available to corporations, partnerships, and individually-owned businesses. The credit would become available for eligible investments made after Jan. 1. of this year. It would be limited to outlays made on new plants and equipment "on assets located in the United States, and with a life of six years or more."

The President said that the plan he recommends does not foreclose revision in the future of existing depreciation rules, which are now under study by the Treasury. This will be considered in a long-range tax reform program to be sent to Congress next January. Aware of the pressure from many business quarters for a plan to allow a more rapid depreciation of new plant and

(Continued on page 45)

Two REA Loans Total $405,000

Rural telephone systems financed with the aid of the Rural Electrification Administration will provide new or improved service to 638 subscribers as follows:

Winnebago Cooperative Telephone Association, Thompson, Ia.; $159,000; Apr. 10.

This loan will help to improve service for 276 subscribers and to furnish initial service to 21 subscribers. The borrower has recently acquired the Fertile Incorporated Telephone Co., which now furnishes magneto service to the existing subscribers.

A new dial central office will be constructed at Fertile. The borrower is considering service without toll charge between its new Fertile exchange, Forest City and Hanlontown. A portion of the loan will be used to aid in improving the service for existing subscribers.

REA loans to this borrower will assist in making possible new and improved service to 4,042 subscribers in Iowa and in Minnesota. Six exchanges in Iowa and two in Minnesota now furnish dial service to approximately 3,225 subscribers. The system will consist of 10 exchanges.

•

Smithville Telephone Co., Ellettsville, Ind.; $246,000; Apr. 13.

Funds will aid in furnishing initial service to 293 subscribers and in improving service for 48 subscribers. As a nucleus for the new service, the borrower proposes to acquire with its own funds the Freeman Telephone Co. now providing magneto service to the existing subscribers.

The Freeman community is adjacent to the borrower's Ellettsville exchange and will be served from that dial office. Service without toll charge is under consideration between the Ellettsville and Stanford exchange areas. REA loans to the Smithville company will help make possible new and improved service to 9,337 subscribers. Ten of the proposed 11 exchanges are now furnishing dial service to approximately 6,925 subscribers.

Communications—Essential Component Of Our Total Deterrent Force

*By Martin J. Luichinger**

TO PREVENT WAR we must be strong. Strong in an all-out offensive capability, which serves as a deterrent against the aggressive designs of treacherous dictators and unscrupulous tyrants.

This line of reasoning takes us back to the philosophy expressed by the late, inimitable Knute Rockne: "The best defense is a good offense." This is a goal sought by us since the close of World War II, and one that must be sustained consistent with the latest weapons developments and techniques, irrespective of costs, until such time as world peace is realistically achieved.

Pending full realization of the world peace objective, we must be ever alert to a situation that is difficult to judge accurately; i.e., what constitutes an adequate degree of security? This will have an important bearing on our continued efforts and expenditures, irrespective of "who's on first," in this or that gap. Our security is in direct relation to our retaliatory offensive power. This retaliatory capacity is a deterrent that must be reckoned with and respected by potential enemies and should exceed theoretical uncertainties. President Kennedy stated on this score: "We cannot be certain of our security in the future, any more than we can be certain of disaster . . . if we are to err in an age of uncertainty, I want us to err on the side of security." Consequently the deterrent must be sustained.

A brief evaluation of the current deterrent was given by former President Eisenhower in his last message to the nation on Jan. 16, 1961:

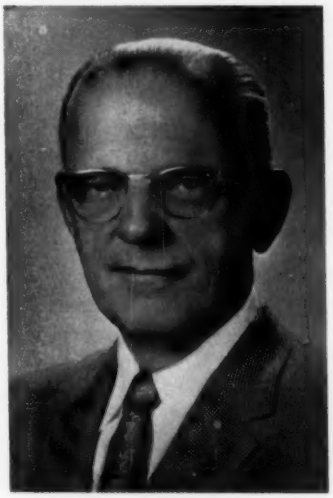
"The deterrent power of our Armed Forces and the forces of our allies is based on a carefully planned combination of nuclear retaliatory weapons systems, together with world-wide deployment of Ground, Naval and Air Forces in essential forward areas, backed up by strong ready reserves.

"These forces make up a collective security system for the free world more versatile and powerful than any military alliance in world history."

Communications and Command

Modern weapons systems obviously rely on communications as a means of command, activation, coordination and control—thus the essence of the title of this article, "Communications—An Essential Component of Our Total Deterrent Force" (without which all of the other deterrent components would be rendered useless).

Communications provide the physical ties between our modern weapons systems and associated command activities; e.g., the radar warning components, DEW (Distant Early Warning), White Alice (Alaska Warning), Mid-Canada Line, Pine Tree Line, Texas towers, picket ships and extended aircraft patrols. Also ADC (Air Defense Command), SAC (Strategic Air Command), SAGE (Semi-Automatic Ground Environment), NORAD (North American Air Defense), and numerous missile activities. Special communications facilities, known as EMC (Engineered Military Circuits), are designed to operate between strategic points. These circuits are planned in detail, but held in abeyance for emergency conditions. They are activated on request of the military and only require toll board patching by the telephone companies.



M. J. LUICHINGER

There is also NAWAS (National Warning System), which is a function of OCDM (Office of Civil & Defense Mobilization). This system is used to activate the nation's Civil Defense Organization and general public warning. It is a nationwide telephone network which connects about 400 warning points strategically located throughout the United States for the purpose of simultaneous dissemination of attack and warning information.

As a further specific example, let's take a quick look at the approximate communications requirements for SAC, which is one of the United States' major contributions to the over-all deterrent force referred to above. As is generally known, SAC headquarters is located at Offutt Air Force Base, Omaha, Neb. All operations are controlled from the communications center located in the underground portion of the modern headquarters building at Offutt Field. Constant direct two-way

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communication is maintained with some 70 bases in 10 countries on four continents, from the Philippines to Saudi Arabia, which permits a complete state of readiness and alert of the entire SAC command. Instant command for action in any part of the world is possible from this communication center at all times.

Telephone Companies' Part

For the most part, these communication facilities within the United States area are provided by the various telephone companies. This includes some of the overseas circuits.

During my visit, a couple of years ago, to SAC headquarters, it was pointed out that, aside from the SAC aircraft that are always in the air in a state of readiness, the entire force throughout the world could be airborne and under orders within 15 minutes, on command from Offutt Field. The extreme value of the communications system emanating from the base is obvious.

On my visit, General Power, then commander of SAC, said, "Without communications, I would only command my desk."

The communications for the various activities outlined above, involving millions of circuit miles, are presently provided by some 600 separate telephone companies, ranging from the larger companies down to and including the very small companies, whose number-one responsibility involves keeping these facilities in top working order at all times. This is nothing new to the telephone industry, since dependable service has always been its prime objective. However, because of the importance of these military facilities, and the part they play in the total deterrent scheme, precautions over and above the normal procedures must be employed.

For instance, in order to minimize the vulnerability of these facilities to damage or loss from either direct attack and/or sabotage, they are protected by underground construction and diversified by duplicate circuits over widely separated routes, with the heavy backbone routes protected by microwave facilities that by-pass critical target areas. Also, special disaster plans provide for rapid rehabilitation and restoration in the event any part of the system is lost.

Small Independents Important

The telephone industry's contribution in the nation's over-all deterrent capabilities, insofar as the toll network is concerned, is very well established, and adequately backed up with high-level maintenance and quick-action restoration plans. However, there is some question as to the plans for local exchange facilities in the event of a national emergency. This is particularly true for the smaller telephone companies. There is a tendency for the smaller telephone companies to regard themselves as relatively unimportant in the over-all picture, because of their remoteness from the expected critical target areas. This type of thinking could not possibly be farther from the truth. In fact, this thinking may be the result of the *complacency disease.*

The small telephone company, whose critical operating area is well outside the limits of an assumed critical target area, could find itself in the midst of a major operation, in the event of national emergency. Such a situation could result from a fall-out pattern evolved from nuclear explosion many miles away, necessitating a heavy influx of population evacuated from adjacent contaminated areas. It could even find itself as headquarters for neighboring city or county Civil Defense organizations, and other government agencies. Under such circumstances, the telephone company involved would be faced with making a series of important decisions, in very short order, for which they might be totally unprepared.

The task of providing communications as a component of the military, must by necessity meet the full requirement for the Civil Defense aspect of the over-all deterrent. This means protection not only for the telephone plant and equipment, but also for the management and operating personnel as well.

Therefore, furnishing communications for the military and the Office of Civil and Defense Mobilization requires certain defense activities within the telephone company organization, which for the purpose of this article is set up as a seven-point program:

(1) Continuity of management.
(2) Alternate or emergency headquarters.
(3) Dispersal and protection of personnel.
(4) Preservation of vital records.
(5) Protection of essential services.
(6) Civil defense activities.
(7) Security.

A brief detail of the seven points follows.

Continuity of Management Plan

Continuity of Management implies an arrangement assuring the continued operation of the business, irrespective of the conditions encountered. Some of the principal factors are:

(a) Line of succession in management, from president down to and including the important lines of supervision.

(b) Financial arrangements to provide for operating cash, particularly payrolls.

(c) Adequate dispersal of top management (on initial alert) together with a nucleus of operating personnel, corporate records, etc.

This phase of the company's defense activities should be an action of the board of directors, who should also provide for an emergency quorum of the board in the event that a major part of the board is lost, or for some reason cannot be convened immediately.

Alternate Headquarters Plan

A suitable alternate or emergency headquarters location should be selected, sufficiently removed from the assumed critical target areas, and/or possible dangerous fallout areas (a minimum of 30 miles), from which the dispersed management group could function in the event the normal headquarters is lost. This alternate or emergency headquarters, in addition to providing for the normal management affairs, should be capable of serving as a damage assessment center from which rehabilitation planning can be directed.

In planning the alternate or emergency headquarters, ample provision should be made for adequate communications with other emergency divisions of the company, other telephone companies with whom interconnections are maintained, and Civil Defense authorities. Every contingency required to facilitate full operation from the emergency location must be taken into account.

Dispersal of Personnel Plan

This plan involves instructions to all employes on their procedure in the event of an alert, particularly during the off-duty hours. Specific points of assembly must be designated, along with instructions for contacting the emergency headquarters and to whom they would report.

An alert during normal working hours, necessitating deployment of operating personnel, would also be in accordance with a predetermined plan of action.

An emergency occurring under either of the above conditions should be covered by a specific plan of operation, spelling out the moves of all employes. This plan must of necessity include survival and rescue training, particularly for all plant personnel, and it should be well coordinated with Plans 1 and 2, above. *Every employe should have First Aid Training.*

All vital company records and plans should be duplicated, with copies stored in a safe, remote location, preferably

(Continued on page 47)

DATA TRANSMISSION TESTS

DATA TRANSMISSION continues to play an important role in the activities of many government and industrial organizations as a means of faster communication. The use of data transmission systems will continue to increase at a very rapid rate over the next decade and beyond.

The use of telephone company-owned facilities in the next few years could very well serve as the medium for more data transmission services than standard voice communication. Evidence of this can be recognized by noting the development of various data transmitting and receiving equipment.

Equipment such as the Data-Phone, manufactured by the Western Electric Co., which converts various data information to a suitable electrical form for transmission over telephone transmission facilities, is one of the recent developments. Development of a new mechanized TWX switching system to be installed and placed into service by the Bell System in the early fall of 1962 is further evidence of the growing importance of data transmission.

Governmental organizations are among the principal users of various data transmission services. Many of these services are being used as a part of our national defense plan. SAGE (Semi-Automatic Ground-Environment), part of the defense of the North American continent, specifically the United States, employs a data transmission system. One function of the data system is the transmission of flight information on airborne craft from various radar installations to various centralized locations. These data transmission systems also provide other important functions.

There are many parameters that must be given proper consideration when engineering for the provision of the circuit facilities over which the SAGE data signals are to be transmitted. One of the important parameters is that of noise which may be introduced into the facility between the data transmitting and receiving apparatus. Of particular importance is noise in the form of short impulses.

In a specification forwarded to the writer by the USITA military liaison officer in the early stages of SAGE operation, it was indicated that a signal to noise ratio of impulse noise to the synchronizing signal should be in the neighborhood of at least 20 db to permit satisfactory operation. Signal-to-noise, S/N, ratios greater than this, of course, would be more desirable.

In the early stages of SAGE, the ability to measure the magnitude of noise having short duration peaks was hampered by lack of adequate test equipment. Then, too, the equipment which would be desirable would be certain to be specialized, that is, would not be used too often in other tests being conducted within the telephone plant.

Early impulse noise measurements were performed through the use of more-or-less general plant testing equipment, which consisted of an audio oscillator; a vacuum tube voltmeter (VTVM), calibrated to read dbm across 600 ohms; and an oscilloscope such as the DuMont Model 304.

In addition to the test equipment listed above, additional components consisting of repeat coils and resistors are required. These components are in normal usage in telephone plant, or are readily obtained.

Fig. 1. illustrates the method of setting up the test equipment in order to measure the impulse noise. The following steps are taken to perform the required measurements:

(1) Terminate the channel under test (both ends) in 600 ohms (impedance into which data transmission equipment is designed to operate).

(2) Set up test equipment as in *Fig. 1.* On the oscilloscope, adjust the sweep frequency to approximately 100 cycle/second, set vertical gain to zero, and adjust the horizontal gain until a portion of the

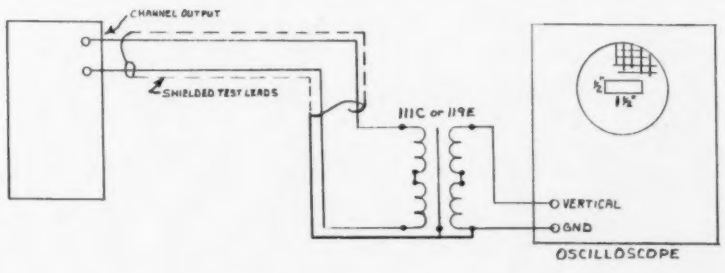


FIGURE 1 - MEASURE

trace extends beyond an opaque sticker affixed to the scope shown in *Fig. 1.* Adjust horizontal and vertical centering controls until the trace is located in the middle of the tape.

(3) Reduce horizontal gain until trace is approximately ½ inch wide and covered by sticker.

(4) The procedure then is to adjust the vertical gain of the oscilloscope so that only occasional bursts of noise, approximately two or three per minute extend beyond the mask.

(5) Without altering scope controls, set up the equipment as shown in *Fig. 2.*

(6) Adjust audio oscillator to a frequency of 1000 cycle/second and adjust until the amplitude of the trace as appears on the scope is of the same deflection as that of the impulse noise. The VTVM then indicates the level in dbm in a 600 ohm circuit.

As was discussed in the specification paper mentioned previously, the parameter which most nearly determines the influence of noise impulse on the SAGE data signal is the 1 per cent 1 millisecond noise level. It was stated that results of a number of tests on channels with impulse noise indicate the parameter mentioned above is about 5 db lower than read in step 6 above.

Specifications also indicated that other tests are also being made to determine effects of noise on SAGE data transmission, and pending the results, noise levels not exceeding approximately -16 dbm should be satisfactory.

While this equipment was used during the initial phases of SAGE for testing the adequacy of facilities proposed as a medium for SAGE data, many companies may still elect to make use of the same apparatus where more adequate test equipment cannot be justified.

APPLICATION NOTES

A FOUR-PAGE application note, explaining a convenient method for performing accurate VLF (very low frequency) comparison measurements, is available from the Hewlett-Packard Co., Palo Alto, Cal.

Referred to as Application Note No. 50, it illustrates the equipment set-up, and describes measuring methods for obtaining accuracies to one part in 1 billion, or higher, in the period of an hour and using VLF standard broadcasts. It was stated that accuracy in comparisons of longer duration proportionally increases.

The equipment employed in the test includes Hewlett-Packard's Model 302A wave analyzer; Model 113AR frequency divider and clock; Model 560A digital recorder; and Model 523/D counter.

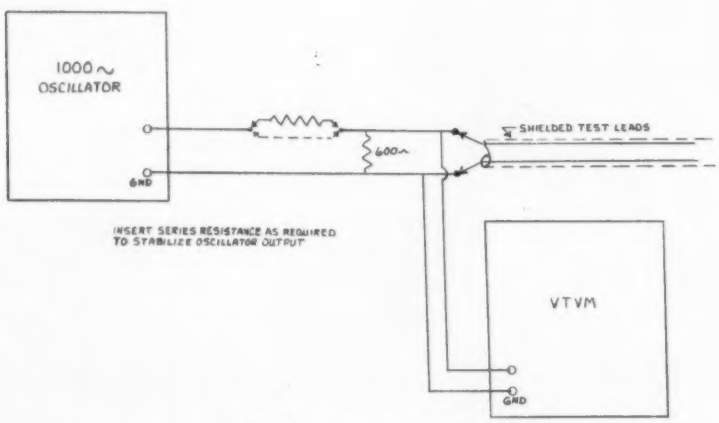


FIGURE 2 - CALIBRATE

SOLID STATE DEVICES

CONSIDERABLE research has been performed in the field of solid state electronics and this research is certain to continue. Refinements in manufacturing techniques and other aspects will improve existing devices to enable use of these components in ever expanding applications. Then, too, new solid state components will be developed to permit advanced theories to become practical. The advantages of these devices must be recognized. This is only the beginning.

In an article which recently appeared in *Bell Laboratories Record*, George C. Dacey, director of solid state electronics research at Bell Labs, discussed the Esaki (tunnel) diode, truly a major development in solid state electronics. As the name would imply, the device was invented by Leo Esaki, the Japanese inventor.

As was brought out in Mr. Dacey's discussion, there are two possibilities that make this new device a significant development. First of all, it has a negative resistance characteristic in its forward characteristic, which permits its use as an amplifier or oscillator; and secondly, the diode may be used as a switching device as a result of having two stable points separated by a region of instability. These two possibilities are recognized by referring to the characteristic curve.

It is to be observed that the negative resistance region is the portion of the curve, whereby an increase in positive voltage causes a decrease in current. Secondly, the switching possibility becomes a realization when, for example, the diode is biased to the point on the left of the characteristic curve (as noted by the dot where the load line crosses). A positive current impulse is applied to switch the diode characteristic to the other stable point to the right (indicated by the dot to the right of the curve).

Mr. Dacey advanced the theory of operation of the Esaki (tunnel) diode as follows:

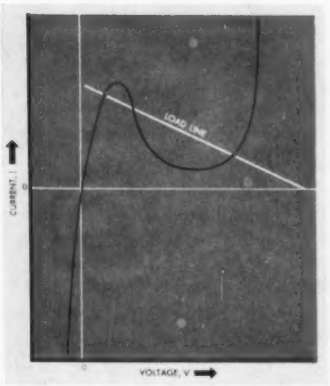
"The Esaki diode depends for its operation on a phenomenon of quantum mechanics known as tunneling —hence the alternate name "tunnel" diode. This process, which has no counterpart in classical theory, permits a carrier—an electron, for example—to "leak through" a potential barrier too high for it to surmount classically, provided that the barrier is not too thick.

"Thus the Esaki effect is only observed in extremely narrow p-n junctions. Junctions are made narrow by virtue of the heavy doping. In other words, the relatively large number of impurities act to compress the forbidden region or narrow the potential barrier in the p-n diode. With sufficiently narrow junctions, tunneling can take place. But current can only flow if there are available electrons to do the tunneling and states into which they can go."

Mr. Dacey then went on to explain how the tunneling effect is made possible by applying the proper bias.

Following a theoretical analysis of the Esaki diode, Mr. Dacey described some of the practical developments made possible by the device.

He said: "One of the promising features of the Esaki diodes is that the negative resistance remains constant up to extremely high frequencies. This is the result of the quantum nature of the tunneling process. The existence of capacitance, however, poses certain circuit problems in obtaining high-frequency operation. In many cases, it is sufficiently large to create problems of stability in biasing and of impedance matching. Also, the series inductance associated with the leads to the diode must be minimized in high-frequency oscillators or amplifiers."



Typical voltage-current characteristic of Esaki Diode shows amplification and switching possibilities (Bell Laboratories Record.)

Mr. Dacey pointed out that recently engineers of Bell Laboratories have made the diode oscillate at frequencies above 100 kilomegacycles, although the output power was said to be extremely small.

In another development, it was stated that R. L. Batdorf and W. Wiegmann made a diode from gallium arsenide that produced approximately one-half milliwatt at 7400 megacycles. This obviously may permit their use in microwave apparatus as a source of power, thus replacing electron tube devices.

TUBE TECHNIQUES

A RECENT DEVELOPMENT in the electronics field has been that of a hydrogen thyratron, the design of which was announced by the General Electric Co.

It was reported that the new electronic device has the highest ratings of peak power, peak voltage, and the highest anode dissipation factor ever offered on the commercial market.

According to engineers, the newly developed tube, designated GL-7890, can operate at an anode dissipation factor over 55 x 10^9 using a coolant such as forced air.

It was further reported that the General Electric Co. has under development the largest hydrogen thyratron tube ever attempted by designers. This tube, designated Z-5212, is said to have objective ratings of 50,000 volts, with an anode dissipation factor of 400 x 10^9 at eight amperes average current, 120 amperes rms.

TRAILING ANTENNAS

AT THE INSTITUTE of Radio Engineers convention held in New York on Mar. 20 to 23, the International Telephone & Telegraph Corp. proposed a plan for using exhaust gases from rocket and jet engines as antennas for radio communication between space ships.

In a technical paper entitled "Feasibility of Employing Ionized Gas Trails as Antennas," Barry Mindes of ITT Federal Laboratories, Nutley, N. J., explains that gases produced by such space craft are electrical conductors and thus, have the potential of functioning as transmitting and receiving antennas.

He explained that the exhaust trail, which is relatively long, would

permit radio communication in the low and medium-frequency bands. This, then, would eliminate the prohibitive size of low and medium-frequency antennas mounted on space craft. Small antennas, however, may be used for communication at higher frequencies.

STANDARDS NEWS

SEVERAL EXPERIMENTS and developments have recently been announced by the U. S. Department of Commerce relating to the National Bureau of Standards (NBS) which are of particular interest.

A report was issued by the NBS on a joint meeting of the International Scientific Radio Union and the Institute of Radio Engineers held at NBS Laboratory, Boulder, Colo., during the latter part of December, 1960. The purpose of that meeting was to discuss and exchange technical information; and to coordinate research efforts, and recommend future projects including those relative to radio propagation, radio measurements and standards, radio waves and circuits.

At a session relating to refraction and absorption, a discussion was held on techniques for the evaluation of atmospheric bending of radio waves. Effects of rain and water vapor on the sky noise temperature were also discussed; and it was reported that during periods of rain, increases as much as 17 db in zenith noise temperatures occur, above the usual background noise caused by oxygen and water vapor absorption.

Several papers on measurements and theories of radio propagation were also presented. Measurements of attenuation rates via certain selected ducts were reported; as were various measurements associated with fading characteristics on a knife-edge diffraction path. In discussions it was suggested that increased relative delays of signal paths could conceivably create significant interference due to interchannel modulation in FM systems.

In the matter of scatter transmission of radio signals, it was explained that tropospheric and ionospheric scatter transmission are a result of a logical consequence of the change in the index of refraction, with increased altitude.

A complete list of the various papers which were presented may be obtained by writing Mrs. Helen Hart, U.S.A. National Committee, National Academy of Sciences-National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C. Papers may then be obtained through the authors.

In other developments at the laboratories, it was reported that special-purpose antennas for investigating the earth's magnetic field have been designed and fabricated. The new loops are to be utilized to collect data on the behavior of micropulsations and to determine how these disturbances may be connected with unusual solar or magnetic activities. It is expected that the results of this experiment will provide considerable useful information about various disturbances in the ionosphere arising from extraterrestrial sources, which may cause propagation characteristics to change in radio communications.

The antenna was described as being a loop, 6½ feet in diameter and having 32,000 turns of nylon-coated copper wire. The copper winding is said to be covered with a layer of copper screening, and then the whole antenna assembly is coated with fiberglas for protection and waterproofing. These steps are necessitated by the fact that the antennas will be buried in order to prevent interference from the action of the wind.

It was reported that there will be permanent installations at Boulder, Colo.; College, Alaska; and Huancayo, Peru. Portable antenna systems will also be equipped to permit measurements of micropulsations over generally broad areas.

The antennas, although developed primarily for the measurements previously outlined, are expected to be of considerable value in the study of extra low-frequency sferics and giant pulsations. Giant pulsations are thought to be caused by resonance in the outer atmosphere under the bombardment by charged particles from the sun; whereas extra low-frequency sferics originate from lightning charges.

ELECTRONICS BOOK

INTERNATIONAL TRANSISTOR SUBSTITUTION GUIDEBOOK, by Keats A. Pullen. Soft Cover; 64 pages; price $1.50.

Intensive use of the transistor is being made in the development of new equipment for the telephone industry. In the maintenance of this equipment, troubles will on occasion be isolated to these transistor components. In many instances, it may not be possible to obtain an exact replacement for the defective transistor at the local parts depot.

However, it may be possible to obtain a suitable replacement. The purpose of this text is to provide the user of transistorized equipment a list of suitable substitutions.

The substitution list is based upon a critical, detailed analysis of the electrical parameters and a compari-

son of the physical parameters of the transistor. Transistors examined and listed were those manufactured in the United States and six foreign countries, including Britain, France, Germany, Japan, Italy, and the Netherlands. An effort was also made to correlate older transistors, which have numbers no longer in general use, with standard EIA numbers presently in use.

This book may be ordered from TELEPHONY.

TUBE SUBSTITUTION HANDBOOK, Volume II

96 pages; price: $1.50.

Electronic apparatus in use throughout the telephone industry utilizes electron tubes. Many of these devices are ruggedized, industrial-type tubes having designations quite different from those of the ordinary, commercial-grade tubes.

During the routine maintenance of this apparatus, it is sometimes necessary to replace these circuit elements. Quite often, however, the technician does not have with him the special electron tube nor is he able to procure the item at the local radio and television repair shop or local distributor of electronic parts. This situation contributes to outages until the item can be obtained. Quite costly!

With the aid of this text, these outages may often be prevented by obtaining a suitable replacement until such a time as the exact tube is procured.

"Tube Substitution Handbook, Volume II," represents the most complete listing of tube substitutions available. The text also includes European substitutes for American tubes and American substitutes for European tubes.

This book may be ordered through TELEPHONY.

REPORT ON SPACE COMMUNICATIONS

A REPORT has recently been prepared for the Committee on Aeronautical & Space Science regarding the use of the radio frequency spectrum, especially relative to space telecommunications. The report has been intended to serve as an analysis of the current situation, both national and international.

The publication, Catalog No. Y4.-Ae8:T23, may be obtained through Superintendent of Documents; United States Government Printing; Washington 25, D. C. Price: $.55.

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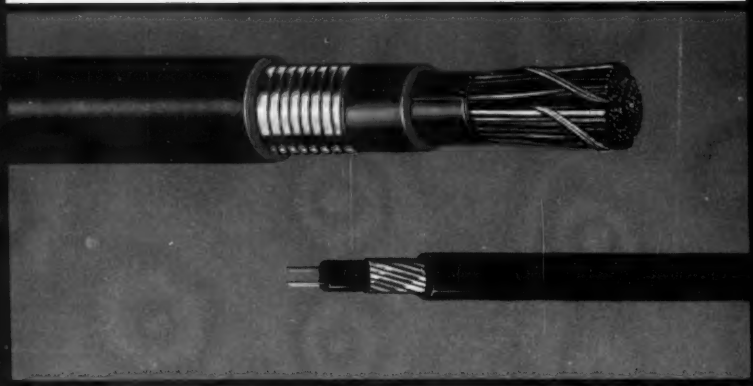

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A B C of the Telephone

by Frank E. Lee

TELEPHONE ENGINEERS are constantly looking for better methods of communication. Sometimes these efforts result in entire new concepts of switching. At other times the end-result may be an improved telephone instrument cord or an improved maintenance procedure.

The same type of planning will return good dividends when directed towards improving the efficiency and serviceability of the telephone vehicle fleet. The average vehicle in the telephone fleet represents a book value of between $2,500 and $4,500 at any given time. Operating costs may be on the order of $100 per month per vehicle. This amounts to an annual operating cost of around $1,200, or about one-third to one-quarter of the book cost. Multiply these amounts by the number of units and the money involved soon reaches rather sizable proportions for the average telephone fleet.

Replacement of Vehicles

Strict dollar accounting alone is not sufficient to measure the value of the fleet as a whole, or of an individual fleet unit. This can be brought out by considering when a fleet unit should be replaced.

PART 99. THE TELEPHONE FLEET. Section 2. Good Management Pays Off in Better Fleet Service.

Section 1. A Vital Link in a Good Communications System (TELEPHONY, Apr. 22).

The question of when to replace fleet vehicles can be answered only in rather broad general terms. Some of the factors to be considered are:

(1) *Comparison of operating costs.* A fleet vehicle should be replaced when operating, maintenance, and annual charges on the undepreciated capital investment are expected to exceed similar costs of operating a new vehicle.

(2) *Obsolescence.* Many fleet vehicles on the highway today should be replaced because they are obsolete and cannot do the job expected of them. This means the fleet should be contemporary, as, for example:

Automatic transmissions are the accepted standard on today's new passenger automobiles and many small trucks. This places manual transmissions in the custom equipment class. The shift to automatic transmissions means that a high percentage of all automobiles five or less years old have a drive range selector instead of a gear shift and a clutch pedal.

A fairly safe assumption is that most private automobiles owned by telephone people have automatic transmissions. The constant change in driving habits in shifting between automobiles equipped with manual and automatic transmissions interferes with developing complete familiarity with either of the vehicles.

Automatic transmissions require less driving effort and improve vehicle operation under a wide variety of driving conditions. The answer is to replace fleet passenger cars having manual transmissions. This probably isn't too drastic a step. The chances are these vehicles are due to be replaced for reasons other than obsolescence.

Van-Body Service Truck

A new concept in small telephone fleet vehicles is the van body service truck. A typical truck in this category is illustrated in *Fig. 1* and *Fig. 2*. The truck shown has a neat, accessible working area, plus a convenient, easy-to-reach from the ground ladder mounting.

Window glass is installed on the right side of the body only, allowing good visibility, yet retaining the left side for shelving and housing of supplies and equipment. Left hand cargo doors can also be provided to permit

Fig. 1

Fig. 2

use of a complete walk-through area if required.

These trucks also are an example of how new design with improved utility may warrant advancing the replacement time of certain fleet vehicles.

Looks, impact on public opinion, and esprit de corps are points to be considered in vehicle replacement. As a general comment, a fleet vehicle that looks old or outdated should be replaced even though capable of 10,000 or 20,000 more miles of service. This is nothing more than giving consideration to the impact on public opinion and employe morale.

Public opinion of an aging automobile changes at a certain point from an example of prudence and good management to an example of management failing to keep abreast with today's modern world. The reaction of the individual driving an out-dated vehicle is also likely to suffer adversely. Pride in the job and the company is bound to suffer. Safe driving may also be affected.

H. H. Butler, general manager of Commonwealth Telephone Company, with headquarters at Dallas, Pa., recently made this comment about the replacement of fleet vehicles:

"The replacement of vehicles is primarily based on condition. Normally, replacement is considered at a point when maintenance costs exceed acceptable limits. A rule of thumb is that sedans and half-ton vehicles are replaced every 75,000 miles or four years, whichever comes first. Vehicle bodies are retained until worn out or obsolete. Line truck engines are replaced whenever necessary."

What About Safety Devices?

Lights for the fleet vehicle are quite generally covered in specific state and local regulations. This includes driving, parking, and stop lights. Turn signals are, or should be, a uniform requirement in all states.

Passenger cars and trucks should also be equipped with emergency warning lights and markers. As a rule, fusees or flares are used to protect a vehicle disabled on the highway between sunset and sunrise. Flags or warning markers are used during daylight hours.

Tire chains, or tires designed for driving on ice and snow, are essential for safe, sure winter driving. Chains, put on when needed, may offer some advantage because they cost less than special ice or snow tires and can easily be put on or removed.

Road sanders offer many practical advantages on larger trucks and tractor-trailer units operated on roads subject to icing conditions during the winter. Road sanders improve traction for safer stops. They also are useful in starting on icy footing or for climbing hills with icy patches.

Fig. 3

Mirrors Important

Outside rear vision mirrors should be used on fleet passenger cars and trucks. A mirror on the left generally is sufficient on passenger cars and smaller service trucks. This mirror should be provided in addition to the mirror supplied as standard equipment inside the car or truck cab. Larger trucks usually require outside mirrors on both sides. These add to highway safety and also help the driver maneuver the truck at loading docks and in similar locations.

A heater should be considered as standard equipment on all fleet vehicles operated in areas where the temperature reaches 32° F. in the winter. A heater can be classified both as a safety device and as an accessory provided for the comfort of driver and passengers. A heater is a safety device for at least three reasons, as follows:

(1) The driver is comfortable in cold weather and can devote his full attention to driving safely.

(2) The defroster unit provided with most heaters helps keep the windshield clear during snow and sleet storms and during frosty weather.

(3) The presence of a heater helps the driver bring fresh air into the vehicle during cold weather without making the interior too cold for comfort.

Color for Visibility

The color of the body finish used on fleet vehicles should be selected with an eye towards safety. In this respect, visibility on the street or highway determines the safety characteristics of a color. The better the visibility, the safer the color. One of the most vivid and most highly visible colors is bright red. Yellow and orange belong in the

Fig. 4

red family of colors and both also have high visibility.

Dark blue and dark green are restful and quiet colors. However, their visibility is not so good as red, yellow, or orange. Light blue and light green have a tendency to blend into surroundings. They are more visible than the darker shades, but do not approach the visibility of the red family of colors.

Snow is Factor

White is quite visible except when the ground is covered with snow. Surprisingly enough, black is not the best color when snow is on the ground. Snow scenes tend to feature black and white contrast. A black vehicle could easily be mistaken for a patch of ground or some similar spot of contrast against the white background.

The aerial construction truck of the Commonwealth Telephone Co., shown in *Fig. 3*, provides an excellent example of the importance of using a high visibility fleet color. The beautiful, rolling Pennsylvania landscape is a study of winter beauty in white and black contrast. The two-tone bright yellow and black finish on the truck body and pole setting equipment is ideally suited for excellent visibility against the snow covered countryside, or at any other time of the year.

An analysis of fleet vehicle colors from the standpoint of safety would rule out solid finishes in blue, green, brown, or black. Red is used on fire trucks and emergency equipment, and for this reason generally is not recommended for telephony company use. This, however, does not rule out other colors in the red group, such as bright shades of yellow and orange. Either of these colors has excellent visibility under practically any driving condition, and should be considered when steps are being taken to improve fleet visibility.

Yellow Highly Visible

Another fleet vehicle, finished in high-visibility yellow, is shown in *Fig. 4*. This vehicle is a compact utility sedan furnishing stylish transportation with plenty of cargo space. The utility sedan body converts a two-door sedan into a business coupe through removal of the rear seat and the addition of a plywood floor. The car is designed for salesmen, supervisors, engineers, and similar people who can use maximum room inside a passenger car. The bright yellow finish of this car provides excellent visibility, plus a distinctive color trademark that would be a credit to any telephone fleet.

Fleet visibility can be improved by using yellow, orange, or white along with a darker color, which may be the finish currently used on fleet vehicles.

Fig. 5

The high-visibility, contrast color could be applied in a dual tone pattern similar to what one automobile manufacturer calls "styletone." In this application the roof of the automobile and fenders and doors below the trim or break line would be the high-visibility fleet color. The top of the hood, the trunk deck and the door and window sections —from the trim line to the roof—would be the darker contrast color. The truck shown in *Fig. 3* is also a good example of the application of a two-tone finish to a larger fleet vehicle.

Two-Tone Truck

The construction truck of the Commonwealth Telephone Co., pictured in *Fig. 5*, is finished in the fleet's distinctive bright yellow with the exception of the upper hood surface, where black has been used. The black finish on the hood helps reduce the reflected glare of the sun. The bright yellow on the rest of the truck stands out distinctively in sharp contrast with surrounding buildings.

Commonwealth General Manager Butler has this to say about the finish used on his company's fleet of over 150 vehicles: "The distinctive yellow color can be recognized at quite a distance and also is good advertising—especially in view of our continuing efforts to sell space in our directory Yellow Pages."

COMMONWEALTH TELEPHONE CO.
DALLAS, PENNA.
MOTOR EXPENSE REPORT

EXPENSE CODES
A - LABOR, B - PARTS, C - GAS, D - OIL, E - TIRES, F - STORAGE, G - FUEL OIL, J - PAINTING, K - ANTI-FREEZE, M - INSPECTION, N - INS. DEP. LIC., O - LUBRICATION, P - GREASE

WEEK ENDING: TUNKHANNOCK JAN 21 1961

MOTOR NO.	DESCRIPTION	YEAR MODEL	TYPE EXPENSE	EXPENSE	WEEK'S TOTAL EXPENSE	
C 2	CHEV SEDAN	57	A	2 10		
			B	2 07		
			N	5 53	9 70	
C 3	FO FALCON SDN	60	N	8 09	8 09	
C 25	CHEV SEDAN	59	A	90		
			B	7 27		
			N	6 43	1450	
C 28	CHEV SEDAN 4 DR	58	A	9 60		Rec 6 HR
			B	75		
			C	13 00		
			N	6 39	2864	
C100	CHEV INST TRK	57	A	7 45		Repair generator
			B	19 45		
			N	6 00	1290	
C105	FORD INST TRK	59	C	4 95		
			N	5 73	1068	
C160	INSTALR TRK	61	N			Rec 6 HR. Exhaust & repair. New paint job off unit
C214	CHEV DIGGER	55	A	11 85		
			B	120 40		
			C	6 26		
			E	71 04		
			P	1 23		
			N	19 95	230 73	
					33304	

Fig. 6

Use of Safety Belts

An amazing paradox in the telephone industry is the absence of safety belts on so many of the industry's fleet vehicles. This is most unusual because of the careful attention given by telephone people to the smallest safety detail. Perhaps the habit of keeping an eye on so many small details is a contributing reason why the big strides in driver safety provided by safety belts are overlooked.

Few linemen in the entire industry would work on a pole without using a safety belt. Here the average fall is from 12 to 15 feet to the ground. However, these same linemen ride in fleet vehicles without thinking of wearing safety belts. The impact of a collision at 25 mph is greater than a 15-foot fall from a telephone pole.

Consider the inertial hazard of a person riding in an automobile at speeds ranging up to 65 mph. In a collision, the vehicle de-accelerates almost instantly. People inside keep moving and are thrown viciously against the windshield or instrument panel. Serious injury or sudden death may result.

Passengers Thrown from Vehicles

Another distinct hazard in an automobile collision is passengers who are thrown from the vehicle. In case after case, the results are serious injury or death—but often the vehicle suffers relatively little damage. These are the inertial hazards of driving automobiles without adequate passenger protection.

Leading universities, police departments across the nation, numerous fleet operators, and thousands of individual drivers, have proven the advantages of safety belts. This factual data should be carefully studied by telephone fleet managers, not to find many reasons why not to use safety belts, but to find the one reason why safety belts *should* be used. This reason is prevention of serious injury and the saving of lives in what otherwise might be serious or fatal collisions.

Vehicle Bodies Strong

Modern auto bodies are stronger than most people realize. Most sedan bodies are welded into various types of unit construction. The completed body assembly generally will protect the passengers and will stand up under rather severe collision impact. Thus, as a rule, passengers have a better chance of survival in a collision if they are held in their seats and are not tossed around inside or thrown from the vehicle. Numerous reports of what otherwise might have been serious collisions tell how drivers and passengers were held in their seats with safety belts and escaped with only minor bruises.

For best results, fleet expense accounts should be set up to record individual unit operating costs on a

(Continued on page 30)

COMMONWEALTH TELEPHONE CO.

DALLAS, PENNA.
ACCUMULATIVE MOTOR EXPENSE REPORT

WEEK ENDING:

MOTOR NO.	DESCRIPTION	YEAR MODEL	LOCATION	YEAR'S EXPENSE	WEEK'S EXPENSE
C 36	CHEV 4 DR SDN	61	CALLAS	7919	2584
C 37	FD FALCON SDN	60	QUARVLLE	5376	2461
C 38	CHE ROLET SEDAN	59	DALLAS	6802	3367
C 39	CHEVROLET SEDAN	59	QUARRYVLE	7139	2708
C 40	FORD FALCON SED	60	WELLSBORO	3657	1118
C 41	CHEV SEDAN	57	CL SUMMIT	6399	1387
C 42	CHEVROLET SEDAN	59	DALLAS	6133	1088
C 43	DODGE 4 DR SDN	60	DALLAS	12701	1771
C 44	DODGE MATADOR	60	DALLAS	10008	3385
C 45	STUD 4DR SDN	60	DALLAS	5782	1573
C 46	CHEV BSCYNE CP	60	DALLAS	7660	832
C100	CHEV INST TRK	57	TUNKHNNK	5410	3290
C101	CHEV HALF TON	59	TOWANDA	4810	1008
C102	CHEV INST TRUCK	57	DALLAS	10347	1633
C103	CHEV HALF TON	59	TOWANDA	3206	764
C104	CHEV INST TRK	58	TOWANDA	4504	634
C105	FORD INST TRK	59	TUNHNNOCK	5347	1068
C106	FORD INST TRK	59	MONTROSE	5683	1258
C107	CHEV INST TRK	58	DALLAS	7912	2287
C108	CHEV INSTALL	60	SHCKSHNNY	9355	4061
C109	CHEV INST	57	MONTROSE	10495	5416
C110	CHEV INST TRK	58	CLK SUMMT	15594	1011

Fig. 7

MAT NO. 1

(below)

ACTUAL SIZE:
3 columns by 10"

the STARLITE telephone

Less than half the size of a regular phone!
Takes less space on a table or desk. Now you can have a step-saving extension at hand even where space is limited.

Style-right wherever you place it.
Use the Starlite in the kitchen, living room or at your bedside. And you can choose from six colors: white, ivory, beige, pink, blue, turquoise.

Lighted dial!
Starlite glows in the dark so you can find the phone quickly. Makes a handy night light, too! You can turn the dial light from soft to bright—or completely off.

You'll like this sparkling new phone...and so will your friends. Order your Starlite today. It costs only pennies a day. Just call our business office.

small in size...
smart in style
...and it has a
lighted dial!

YOUR TELEPHONE COMPANY

MAT NO. 2

(at right)

ACTUAL SIZE:
4 columns by 21"

the STARLITE telephone

Less than half the size of a regular phone!
Takes less space on a table or desk. Now you can have a step-saving extension on hand even where space is limited.

Style-right wherever you place it.
Use the Starlite in the kitchen, living room or at your bedside. And you can choose from six colors: white, ivory, beige, pink, blue, turquoise.

Lighted dial!
Starlite glows in the dark so you can find the phone quickly. Makes a handy night light, too! You can turn the dial light from soft to bright —or completely off.

You'll like this sparkling new phone... and so will your friends. Order your Starlite today. It costs only pennies a day. Just call our business office.

small in size...
smart in style...
and it has a lighted dial!

YOUR TELEPHONE COMPANY

MAT NO. **3**
(at right)
ACTUAL SIZE:
2 columns by 5"

the STARLITE telephone
small in size...
smart in style...
and it has a lighted dial!
Saves space on table or desk. Starlite is less than half the size of a regular phone!
Smart appearance. Starlite is style-right wherever you place it. Choice of six colors.
Lighted dial glows in the dark! Helps you find the phone quickly. Makes a handy night light, too!
Order your Starlite today! It costs only pennies a day. Just call our business office.
YOUR TELEPHONE COMPANY

MORE NEWSPAPER AD MATS

To help you sell Starlite phones!

Last Fall, we sent our customers a newspaper ad mat on the Starlite phone. The response from telephone companies was overwhelming. Because of the demand for this type of sales aid, we have produced *three new* ad mats on the Starlite phone (shown here).

These new ad mats are designed to help you promote the Starlite phone in your local newspapers. We also suggest that you ask the editor to give you tearsheets of your ads for display in your office or wherever it will be seen best by your customers. To get your free ad mats, just fill out the coupon (at right) and mail today.

AUTOMATIC ELECTRIC
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

AUTOMATIC ELECTRIC SALES CORPORATION
Northlake, Illinois
Attention: J. M. Zidlicky, Director of Sales Promotion

Gentlemen:
We want to promote the Starlite phone in our local newspaper. Please rush us your three new ad mats which feature the Starlite phone.

MY NAME IS _____ PLEASE PRINT CLEARLY

COMPANY NAME _____

STREET ADDRESS _____

CITY _____ ZONE _____ STATE _____

weekly, monthly, and annual basis. In addition, the expenses for each unit should be broken down to reflect the cost of various specific services. This is a rather large order, because numerous expense items may amount to only a few cents or a few dollars. However, the true picture of the cost of operating each vehicle can be gained only by making sure that the records reflect the total expense.

At the outset, the detail required in maintaining an accurate fleet expense account is a good reason why fleet record-keeping should be mechanized. An example of an efficient fleet record system is one kept by the Commonwealth Telephone Co., which provides the following information:

(1) Weekly motor vehicle expense broken down by vehicle and type of expense.

(2) Yearly expense broken down by vehicle.

(3) Gas and oil mileage report, indicating miles per gallon of gasoline.

Tabulating Machines Used

As with other machine tabulating methods, this system does not involve any unusual procedures on the part of the shop personnel or the drivers of the fleet units. The various items of expense for each vehicle are recorded as they occur, and are entered or punched on an IBM card. From this point on, the IBM machine collates the expenses and data for each vehicle and prepares the various periodical reports.

The expense control information on these reports is as follows:

(1) *Motor Expense Report.* (A typical section of the report is illustrated in *Fig. 6*). This covers each fleet unit assigned to a specific location. The information on the report includes:

(a) Unit number, description, and model year of the vehicle.

(b) Type of expense, recorded in accordance with the following codes:—A—Labor; B—Parts; C—Gas; D—Oil; E—Tires; F—Storage; G—Fuel Oil; H—Painting; K—Anti-freeze; M—Inspection; N—Insurance, Depreciation, Licenses; O—Lubrication, and P—Grease.

Depreciation has been broken down to a weekly amount for each vehicle and is charged each week. This provides a uniform expense picture throughout the year.

(c) Week's total expense. The blank column on the right edge of the form is used for explanatory notes when the weekly expense for a vehicle exceeds a predetermined amount.

(2) Accumulative Motor Expense Report. (Illustrated in *Fig. 7*). It includes:

(a) Unit number, description, year model, and location of the fleet unit.

(b) Year's expense (accumulated to the date of the report.)

(c) Week's expense.

(3) Monthly Gas and Oil Mileage Report, shown in *Fig. 8*, includes the following information for each unit:

(a) Unit number, description, year model, and location.

(b) Quarts of oil used and gallons of gasoline consumed.

(c) Beginning, end, and total miles travelled for the month.

(d) Miles per gallon of gasoline.

(e) Total expense for the month.

Used for Programming

The fleet record forms, illustrated in *Figs. 6, 7,* and *8*, have been selected to show the efficient way one operating company handles this problem. The information included on the various forms provides typical examples of how the forms are used. There is no intention on the part of the author, TELEPHONY, or Commonwealth Telephone Co., which so graciously made this information available, in illustrating this fleet record system, to compare the operation or performance of one fleet vehicle over another or to favor any particular make or makes of fleet units.

A continuing program of studying and analyzing systematically kept fleet records will provide useful information for programming a wide variety of fleet management decisions such as:

(1) Service operations.

(Continued on page 50)

COMMONWEALTH TELEPHONE CO.
DALLAS, PENNA.

MONTH: **MONTHLY GAS & OIL MILEAGE REPORT**

MOTOR NO.	DESCRIPTION	YEAR MODEL	LOCATION	Gas. Oil Used	GAL. GAS CONSUMED	MILEAGE BEG. NO.	MILEAGE END NO.	MILEAGE FOR NO.	MILES PER GAL. GAS	MONTH'S EXPENSE	
36	CHEV 4 DR SDN	61	DALLAS		1403	4302	6159	1857	13 2	78 97	
37	FD FALCON SDN	60	QUARVLLE		810	15572	16399	827	10 2	55 79	
38	CHE ROLET SEDAN	59	DALLAS		699	23025	23832	807	11 5	75 82	
39	CHEVROLET SEDAN	59	QUARRYVL		1410	43029	45071	2042	14 5	74 51	
40	FORD FALCON SED	60	WELLSBOR		620	22387	24207	1820	29 4	45 80	
41	CHEV SEDAN	57	CL SUMMI	1	1540	61687	63687	2000	13 0	67 31	
42	CHEVROLET SEDAN	59	DALLAS	2	1600	38880	40854	1974	12 3	63 45	
43	DODGE 4 DR SDN	60	DALLAS	2	1700	11913	14027	2114	12 4	75 10	
44	DODGE MATADOR	60	DALLAS		1348	30066	32085	2019	15 0	81 92	
45	STUD 4DR SDN	60	DALLAS	2	640	10631	11680	1049	16 4	49 53	
46	CHEV RSCYNE CP	60	DALLAS		1888	14662	17418	2756	14 6	75 73	
100	CHEV INST TRK	57	TUNKHNNK							58 76	
101	CHEV HALF TON	59	TOWANDA							47 42	
102	CHEV INST TRUCK	57	DALLAS	3	1130	47112	48441	1329	11 8	95 18	
103	CHEV HALF TON	59	TOWANDA							42 16	
104	CHEV INST TRK	58	TOWANDA		410	47194	47664	470	11 5	43 94	check wiring, fuse holders
105	FORD INST TRK	59	TUNHNNOC	2	1757	27199	28711	1512	86	103 90	flashers + wheel bearings
106	FORD INST TRK	59	MONTROSE	1	884	12799	13616	817	92	61 27	
107	CHEV INST TRK	58	DALLAS	1	1790	60035	62353	2318	12 9	76 85	
108	CHEV INSTALL	60	SHCKSHNN		1530	13500	15596	2096	13 7	99 30	
109	CHEV INST	57	MONTROSE		115	38985	39250	265	23 0	85 08	P.M. Clean
110	CHEV INST TRK	58	CLK SUMM	1	1400	48634	50195	1561	11 2	164 22	Carb. + adjust points, Tune Eng
111	CHEV INST TRK	57	BANGOR		660	32981	33802	821	12 4	38 62	

Fig. 8

IOWANS UNDERSCORE GROWTH

in program of

"Progress—By All Means"

By Helen Hardin

THE IOWA INDEPENDENT Telephone Association met in its 66th annual convention on Mar. 23, 24 at the Hotel Savery in Des Moines. Welcomed by President Harold Thompson of Clear Lake were representatives of 325 Independent telephone companies in the state.

Iowans took as their 1961 convention theme the slogan, "Progress by All Means," a compelling challenge to growth in all phases of telephone operations.

Presiding over the luncheon meeting on the first day of the convention was John J. McIntosh of Cedar Rapids, past president of the association.

Speaker for this occasion was Charles M. Hanna, of Chicago, Ill., a labor-management consultant, whose subject was "The Conquest of Confusion." Mr. Hanna sought to provide an antidote for the confusion which he refers to as the order of the day in our society.

Looking at America's social ills, Mr. Hanna made a plea for the preservation of the spirit of religion, the spirit of creative art and research, and the spirit of business enterprise, the pillars on which he believes our civilization is built. These, he said, must be preserved if we are to survive.

To conquer the confusion, which the speaker feels is largely a matter of the national outlook, he suggested that we as Americans must "rekindle faith in ourselves, our fellow man and our Creator; must rediscover the meaning of work, and must revive our sense of humor."

Continuing, Mr. Hanna said, "Work is a dirty word in the present, pearly period of the premeditated goofoff and the inordinately elongated coffee break. We're becoming soft and lazy, and we're going to have to demand a little more, and a better, grade of effort from ourselves."

He termed a sense of humor "our theft-proof secret weapon," which stems from a sense of the proper order of things.

He sees the lack of faith as an unfortunate condition in our country. If the men in the Kremlin could see this attitude changed to a willingness on the part of a deeply religious America "to die for her faith and freedoms," it might cause Russia to "talk and plan quite differently," he said.

In summary, Mr. Hanna feels that faith, work, and laughs can make us a stronger America.

Iowa Independent Telephone Association's 1961 board of directors. Standing (l. to r.): Harry Miller of Great Bend, Kan.; E. B. Zerwas of Manning, second vice president; Ross K. Vernon of Sioux Center; Edward G. Carlson of Creston; Harold Thompson of Clear Lake, president; A. W. Sanders of New London, first vice president; John J. McIntosh of Cedar Rapids; Arthur E. Long of Sloan; and W. F. Miller of Des Moines, executive secretary. Seated (l. to r.): Earle G. Bellamy of Knoxville; Norwood Teal of Keosauqua (newly elected); C. C. Pearce of Riceville, president of United States Independent Telephone Association; Howard Amick of Des Moines; V. D. Peck of Primghar; Gene Daubendiek of Jefferson; H. F. Melick of West Liberty, honorary director; and J. L. Van Horn of Grinnell. Others reelected, but absent when photo was taken are: Clyde McFarlin of Montezuma; L. E. Travis of Newton; J. L. Trevillion of Chariton; and Kenneth A. Young of Fort Dodge.

The Iowa association's progress report for the past year was presented by the executive secretary, William F. Miller of Des Moines.

The only Iowan who has served as president of the United States Independent Telephone Association (USITA), Clifford C. Pearce of Riceville, addressed members of the state association on "Our Role in the Sixties," and reminded his audience of the great progress made in just the past 15 years in the telephone industry—more than in the entire span of the previous 50 years.

He urged Independent telephone companies to become members of the national association and make their leadership felt in its affairs. As the industry looks toward even greater progress in communications, he termed USITA truly "the vanguard of the 60's."

He pointed out that prior to and during WWII, the telephone industry was engaged largely in transmitting the human voice over wires. Today, this is a communications industry.

He said, "During the past 10 years, we have seen many things come to pass—Direct Distance Dialing, All Number Calling, CAMA, mark-sensing, touch tone dialing, Dataphone, call director, compact telephones, the transistor, microwave, the wave-guide, over-the-horizon transmission, solar battery, and printed circuits." Many of these words and phrases, most of which the industry had never heard before, have become common-place, he pointed out.

Mr. Pearce brought before the conventionites a vision of the day of round-the-world telephone calls via satellite . . . of telephone calls and TV programs carried by a world-wide communications network, and of 50 satellites orbiting 3,000 miles above the earth.

C. C. Pearce (right) of Riceville, the first Iowan to hold the office of president of the United States Independent Telephone Association, receives a plaque honoring his office and service to the USITA from Harold Thompson, Clear Lake, Ia., president of the Iowa Independent Telephone Association.

All this, he admits, presents some awesome challenges and "some terrifying changes in the next 10 years," but he says "we cannot help but be optimistic about the future of the telephone industry. The challenges will bring with them many openings for jobs, many opportunities for investment and for profit. And there will be opportunities for service such as we have never known before. Most students of our business believe that the brightest era, and our largest opportunities lie ahead. There seems to be no letup in demand for telephone service. This demand for communications service is just beginning."

Following Mr. Pearce's address, he was honored by the Iowa association with a plaque recognizing his service as the first Iowa president of the USITA.

In line with the convention theme, "Progress By All Means," the program emphasized continued improvement of both rural and urban service. The association employed a buzz-session device known as the "Idea Trading Post," through which round-table discussion groups exchanged ideas on a range of 25 subjects. Members chose their tables and rotated at intervals. This sharing of ideas and developments undoubtedly offered some practical solutions to the various company problems.

Among subjects which were explored by the Iowans' Idea Trading Post were:

(1) Carrier equipment for rural telephone service.

(2) Direct Distance Dialing, being pioneered in Iowa at Creston, which is becoming an important toll center.

(3) Mobile radio-telephone service.

(4) Dial systems which are growing rapidly in the state. Iowa has more than 90 per cent dial service now, and more companies are programmed for conversion.

(5) The broad area of Farm Communications. This covered loud-ringing bells to call farmers to the telephone, and intercommunication between the farm house and other buildings. Many improved services are available for farms, and many farm families presently enjoy them.

(6) The popularity of color telephones and new styles for the different areas of the home.

The Iowa association also incorporated into its program an entertaining presentation of its associate members, the representatives of manufacturers. In the manner of a familiar TV program format, this portion of the program was called "The Line Up," and some of the new representatives of manufacturers were introduced, or "lined up" for "merciless" questioning. As they came out on the stage, in the manner of a regular police line up, "third degree" questions provided some fun. It also served to familiarize the members with new representatives and their companies' equipment, products, or services.

The IITA elected one new member to its board of directors. He is Norwood Teal of Keosauqua.

Directors re-elected to serve on the board are: Howard Amick of Des Moines; Earle G. Bellamy of Knoxville; Edward G. Carlson of Creston; Gene Daubendiek of Jefferson; Arthur E. Long of Sloan; Clyde McFarlin of Montezuma; John J. McIntosh of Cedar Rapids; H. Filmore Melick of West Liberty; Harry Miller of Great Bend, Kan.; C. C. Pearce of Riceville; V. D. Peck of Primghar; A. W. Sanders of New London; Harold Thompson of Clear Lake; L. E. Travis of Newton; J. L. Trevillion of Chariton; J. L. Van Horn of Grinnell; Ross K. Vernon of Sioux Center; Kenneth A. Young of

(Continued on page 49)

Over-all view of setup devised by Iowa association's program committee for its "Trading Post," which did a rushing business in the exchange of ideas and lively discussions of equipment. Members selected their tables and rotated when they switched discussion topics.

The Plant Man's NOTEBOOK

By RAY BLAIN, Technical Editorial Director

REPORTS INDICATE that the subscriber line concentrator is coming into general use by many of the larger operating companies. As the name implies, the concentrator reduces the number of cable pairs required to serve a group of telephone users. This is accomplished by the use of a remote switching unit which may be pole-mounted. Each unit serves as many as 100 subscribers. The pole-mounted unit is linked with the central office "control" unit by only one-fifth the number of trunk lines that would otherwise be required. In other words, by the use of the concentrator, 100 telephones now can be served by 20 trunk lines.

This arrangement is based on the probability that the average customer uses his telephone only about 5 to 10 per cent of the time during busy traffic periods. Also, in any group of customers, only a few are using their telephones simultaneously. What the concentrator accomplishes is to distribute this usage among fewer cable pairs, automatically selecting an idle line to connect any calling telephone to the exchange.

Although a reduced number of lines will be required, the customers' service will not be affected in any manner. To prevent overloading, heavy users and essential users such as doctors will generally not be assigned to a line concentrator. The number of subscribers assigned to each unit will also vary so there will not be more than one "all trunks busy" signal per day on any concentrator.

Another advantage is that subscribers may be connected to or removed from the concentrator without changing their number. Furthermore, the central office control units can be permanently installed and the remote switching unit's location changed as required to provide service where cable capacity is not available.

•

We have a letter from J. E. Stover, manager of the Southwestern Bell Telephone Co., at Blytheville, Ark., making the following comment concerning a statement on this page in the Feb. 11 issue, which indicated the need for manufacturers to make provisions for the installation of telephones in mobile homes:

"If anything, you perhaps underestimated the need for manufacturers of mobile homes to make some provision for telephone service in them.

"There is an air force base here, and a surprisingly large number of military personnel live in mobile homes. We often encounter problems in the installation of telephone service.

"Actually, mobile homes of any size should have provision made at the factory for the installation of two telephones. Quite a number of our customers who live in these homes have one telephone in the living room area at one end, and another in the master bedroom at the other end. The utilization of space in the mobile home is such that it is even more inconvenient to spring down the hall to answer the telephone than it is in the conventional house."

The manufacturers of mobile homes, it seems, have thought of almost every other convenience to build into these units, including radio and TV antennas, and niches for mounting these sets. It, therefore, appears very strange that they have not provided entrance conduit for telephone service. In this connection, however, we must remember that many years were required to educate builders and contractors to the necessity of prewiring new homes for telephone service.

•

The U. S. Army Signal Corps telephone system at Ft. Monmouth, N. J. was recently cut over to direct inward and outward dialing. The PBX lines are all assigned seven-digit ANC numbers. These numbers can now be dialed direct without assistance from the PBX operator.

The code for the Ft. Monmouth area is 201. Outsiders can obtain Ft. Monmouth Information by dialing 532-9000.

•

On numerous TV programs, we hear highway patrolmen and others sign off on a radio-telephone conversation with a simple "Ten-Four." For the uninitiated, this is short for "will do" when using telephone coded messages.

•

On the Line, published by the Australian Post Office, describes a most unusual case of cable trouble experienced "down under" recently.

An automobile collided with, and overturned, a tank truck, causing 3,500 gallons of blazing gasoline to flow down the street. This blazing gasoline entered two manholes and flowed 150 yards through ducts, completely burning out two junction cables and three subscribers' cables.

Restoration of service was delayed for some time, until the fire was extinguished. The tank truck still contained 1,000 gallons of gasoline that had to be removed. Fallen high tension and trolley wires had to be made safe. The floors of the manholes were covered with a mixture of gasoline, fire extinguisher foam and water, and a mixture of gasoline and water seeped out of the ducts for days.

Splicers could stay in the holes at first for only a few minutes at a time before being almost overcome by the fumes. Naked flames were not permitted in the manholes or the vicinity for over a week.

Temporary service was restored within eight hours, and permanent repairs

TECHNICAL BRIEF NO. 60-2

By D. L. DAVIES, *Manager, Technical Dept.*
Wood Preserving Division
Koppers Company, Inc.

PRESERVATIVE PENETRATION IN SOUTHERN PINE POLES

Emphasis in the past has been placed on the importance of preservative retention in poles. Penetration is equally important. The data on which present AWPA penetration requirements are based are reviewed below.

INITIAL SPECIFICATIONS

In 1924, the American Wood-Preservers' Association adopted its first specification covering pressure treatment of poles. This specification required that "all of the sapwood and as much of the heartwood as practicable" be penetrated. The method for determining penetration was not clearly defined.

RELATIONSHIP BETWEEN PRESERVATIVE PENETRATION AND DECAY

In the early 1930's AWPA Committee 5-5-1, "Poles-Pressure-Treatment" began an extensive inspection of pole lines to determine whether there actually was any relationship between preservative penetration and decay. The investigation included a careful examination of 2,393 southern pine poles which had been in line ten years or less.

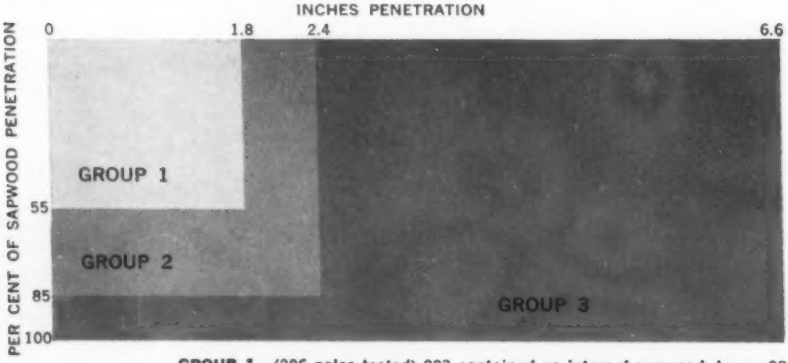
Sections of the chosen lines contained from 100 to 200 or more poles that had been set consecutively in a period of one year.

Each pole was tested by sounding with a hammer or a hatchet. When hammer blows produced a dull tone, the suspicious area was sampled with an increment borer, so that sapwood depth, penetration, and decay could be determined in that area. On all poles which proved sound, increment borer cores were taken 4½ feet above the ground line for measurement of sapwood depth and penetration.

TEST RESULTS

Table below shows that there were *no* failures in Southern Pine Poles with at least 2½ inches of penetration *or* 85% or more of the sapwood penetrated.

As a result of this study, the AWPA, in 1937, revised the standard for southern pine poles to require a minimum penetration of either 2½ inches or 85% of the sapwood.



GROUP 1—(286 poles tested) 223 contained no internal sapwood decay. 28 contained internal sapwood decay, but were serviceable and 35 failed due to internal sapwood decay.

GROUP 2—(324 poles tested) 318 contained no internal sapwood decay, 5 contained internal sapwood decay but were serviceable, and only 1 failed.

GROUP 3—(1783 poles tested) no internal sapwood decay.

KOPPERS
PRESSURE-TREATED WOOD

For the full report on Preservative Penetration in Southern Pine Poles, or answers to technical questions on poles or pole treatment, write: Koppers Company, Inc., Wood Preserving Division, Technical Department, Room 757, Koppers Building, Pittsburgh 19, Pa. C-46

completed within 52 hours. This was accomplished by splicing crews working continuously in 12-hour shifts.

•

We have a report from Miami, Fla., that when a lady alighted from an automobile in that city recently, she was attacked by two stray dogs. She made a run for the nearest outdoor type telephone booth for protection. While the mongrels snapped and snarled, the lady telephoned the police, who sent a squad car to her rescue.

•

Lockheed Aircraft Corp. is reported to have recently established the world's largest private telephone system. It is stated that this system is necessary to speed up communications on defense work, and that it will save a quarter-million dollars a year.

This network links 65 Lockheed offices and facilities across the continent and involves 100,000 lines leased from 15 U. S. telephone companies.

Development in conjunction with the Long Lines department of AT&T, the "Lockheed line," and its 21,727 telephones will connect by dial service the corporate headquarters at Burbank, Cal., with divisions, subsidiaries, bases, branch offices, and affiliates across the nation.

An added bonus in savings comes from the fact that this network is designed to transmit data between high-speed electronic computer centers at each of the company's major divisions during the light-traffic evening and early morning hours.

•

It is reported that safety belt fixtures will be standard equipment on all 1962 models of the big five automakers.

With present models, the car owner is faced with a bill of up to $40 for installing front-seat belts—mostly for the labor costs of drilling through the car floor to attach the hardware. With the new models he will pay only about $10 for the belts.

"Cross Talk"

Push-button warfare is described as two people competing for the same self-service elevator.

•

When small men cast big shadows, it means that the sun is about to set.

•

It is claimed that failures are divided into two classes — those who thought and never did, and those who did and never thought.

saves you money— to purchase, to install and to operate

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You can buy 30 AChieverfones for the cost of 20 competitive mobile phones. In fact, AChieverfone is built to save you money! This is true from the initial purchase and installation in your customers' vehicles through many years of reliable operation.

AChieverfone's low cost comes from its two simply constructed basic units: the control head and the R-T unit. The control head, which contains the handset holder, junction box, and channel selector, uses standard radio components and hardware. The R-T unit is low in cost because modern assembly techniques, and efficient, straightforward design have been used. In addition, the R-T unit's decoder uses only one-third the number of parts of other transistorized models.

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Transmitter: 144-174 Mc, 4-Channel
RF output: 22.5 watts into 52 ohm load

Receiver: 144-174 Mc, 4-Channel
Wide Band (60kc) or Narrow Band (30kc) models available (Bands quickly converted to Narrow or Wide by substituting IF filter)

Frequency Stability: within 0.0005%

Selective Signaling: 51,000 five-digit (compatible, 2-tone, sequential) codes available

Size: Receiver-Transmitter, 21⅛" x 8⅜" x 6¼"

Weight: 37.25 pounds, including receiver-transmitter, control head and interconnecting cable

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Courts and Commissions

Authorize Oregon Company To Issue, Sell Stock

The Sunnyside Telephone Co. on Apr. 17 was given permission by the Oregon Public Utility Commissioner to issue and sell 87,664 shares of its $1.00 par value common stock.

The Sunnyside company furnishes service to 1,522 stations through exchanges at Sunnyside, Damascus, Yamhill and Lafayette.

The stock is to be sold on an underwritten basis to June S. Jones Co., an investment firm of Portland, Ore., at a price of $1.33 per share. The underwriter proposes to offer the stock to investors at $1.50 per share.

The commissioner said that the "underwriting commission is within the range of that which is normal for this size of a stock issue and . . . the price and terms of sale are fair and reasonable."

On Feb. 8, the commissioner approved a Rural Electrification Administration loan agreement for Sunnyside in the amount of $206,000. However, the amount of borrowing under this order for 1961-62 construction is limited to $111,000. The Sunnyside company's management, the commissioner said, "desires to build all facilities possible from equity and internally generated funds to keep its equity capital as high as possible."

The commission mentioned that the company had experienced growth in its operating area and would require funds for future construction purposes.

Sunnyside's capital ratios, as of Dec. 31, 1960, and pro forma after issuance of 87,664 shares of common stock and the $111,000 portion of the REA note for 1961-62 construction are as follows:

	Dec. 31 1960	Pro Forma
REA Notes	78.7 per cent	71.4 per cent
Common equity	21.3	28.6
	100.0 per cent	100.0 per cent

Acquire Ia. Company's Stock

The Iowa-Illinois Telephone Co., New London, Ia., it was reported Apr. 11, has acquired all of the outstanding stock of the Libertyville Telephone Co. Iowa-Illinois began operation as of Apr. 1. The announcement was made by A. W. Sanders, executive vice president and general manager. The purchaser will proceed with the conversion to dial which the Libertyville company began, and it is expected that Libertyville will be cut to dial operation "within the next 90 days."

Ga. Independents Required to Pay 6% on Service Deposits

The Georgia Public Service Commission has ordered that a uniform basis should be used by all Georgia Independent telephone companies concerning interest paid on customer deposits.

The commission ordered all Independents to issue a receipt to customers, from whom such a deposit for telephone service is required, and to pay these subscribers 6 per cent yearly interest at any time the subscriber requests, not to exceed once yearly.

Also ordered by the commission was a refund, when and if a satisfactory credit rating for these subscribers is established.

Service, Financing, Sale Bids on Missouri Docket

The Missouri Public Service Commission on Apr. 10 received the application of the Leewood Telephone Co., Garden City, to consolidate its Leewood and Regal exchanges and install rural dial service in the consolidated area.

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Set for a hearing by the Missouri commission on Apr. 17 was the application of Southwest Dial, Inc., Cassville, for authority to issue 290 shares of common stock and 500 shares of 6 per cent preferred stock.

•

The joint application of the Fortuna Telephone Exchange, owned by J. J. Brant and Margaret A. Brant, to sell, and of Mid-Missouri Telephone Co., Gilliam, to purchase the former's properties and some adjacent territory was received by the commission and set for a hearing on May 4.

Indiana City Petitions Commission for Rate Review

There has been a new development, it was reported on Apr. 1, in the Indiana Telephone Corp., Seymour, rate case, which has been involved in controversy for four years (TELEPHONY, Mar. 25).

Indiana Telephone Corp., which serves 40 southern Indiana communities, received an average 60 per cent increase in rates in 1957. The following year, the commission rescinded that increase, but allowed the company to charge the higher rates while appealing its case in the courts.

In December, 1960, the Indiana Appellate Court upheld the rate increase and returned the case to the commission for further hearings. Then, on Mar. 13, the commission approved the rates already being charged, and the case was apparently settled.

However, the city of Seymour, headquarters of the company, has petitioned the commission to review its Mar. 13 order granting the rate increase.

Indiana Telephone Corp. officials replied that granting a new hearing would delay the company's plans for 6-million-dollar expansion and improvements. The company said, "We want to get the rate question settled as soon as possible so we can get on about our business. We are not attempting to get a rate increase at this time, although we feel we are entitled to one, due to inflation. We could go ahead with the rates now in effect and do the improvements we have planned, but it would be difficult."

Approve Ind. Bell Plan for Indianapolis Toll-Free Area

The Indiana Public Service Commission gave general approval on Apr. 19 to Indiana Bell Telephone Co's. plan for expanding and improving metropolitan telephone service in the Indianapolis area (TELEPHONY, Oct. 1, 1960).

The commission authorized:

Direct local calling without long distance charges between Indianapolis and surrounding exchanges within 24 miles of downtown Indianapolis.

City grades of service throughout

the Indianapolis exchange area, eliminating eight-party service and mileage charges. Replacement of rural service with the suburban plan in Indiana Bell exchanges surrounding Indianapolis.

Local calling between suburban exchanges up to 18 miles apart.

Introduction of Direct Distance Dialing (DDD) throughout the metropolitan area.

Establishment of a new metropolitan rate classification appropriate to the enlarged local calling area—approximately 10 per cent above existing Indianapolis rates. This increase will give the company an added 3.5 million dollars annually.

The commission denied Indiana Bell's petition for changes this year in certain miscellaneous and extension rates coincident with the addition of two more suburban offices to the Indianapolis local calling area. It ruled that all rate adjustments would be effective with the completion of the entire program in 1962.

Commenting on the order, Indiana Bell president Roy C. Echols said:

"The services we are offering in this program are vital to central Indiana. We will go ahead with Metroplan and our target for completion is the summer or fall of 1962, even though the date established by the commission for some rate changes is much later than we had proposed."

The plan, outlined by Indiana Bell at a hearing before the commission in December and further clarified at a supplemental hearing Apr. 10, involves 17 Indiana Bell exchanges in the metropolitan area. It could embrace as many as 31 exchanges if all eligible connecting companies elect to participate.

United of Arkansas Asks Stock and Bond Approvals

The United Telephone Co. of Arkansas on Apr. 10 asked the Arkansas Public Service Commission for permission to issue 4,000 shares of common stock at $25 a share and to issue $850,000 worth of 5 per cent, 30-year first mortgage bonds.

The company said part of the money would be used to convert the Clarendon, Leachville, Manila and Trumann exchanges to dial.

United also stated that $770,000 of the funds would be used to repay advances from its parent company, United Utilities, Inc., which financed the conversion of other exchanges to dial.

Nebraska Credit Card Bill

The judiciary committee of the Nebraska Legislature has approved and advanced a bill designed to curb the misuse of all types of credit cards. The bill provides penalties of up to a $100 fine and 30 days in jail if the amount involved is not more than $50, and fines of $200 to $500 and one year in jail, if the amount is over $50.

Cover Photo

The faithful magneto telephone stages a startling comeback aboard one of the latest additions to the U. S. growing fleet of atomic-powered submarines. Surrounded by complex electronic computers, 'scopes and display panels, the telephone goes about its business with the assurance of a dowager at a closed-invitation ball.

Crew members of the *USS Tullibee* purchased this 1918 Stromberg-Carlson model from a Connecticut antique dealer while the sleek nuclear attack submarine was under construction at the General Dynamics Corp. Electric Boat Division.

The cabinet finish was restored, wiring was modified for its application in the crew's mess; everyone is delighted as they "crank to connect" — healthy reminder of the "good old days" in the awesome atmosphere of armed readiness in the atomic age.

Financing; 2 Sales Approvals Granted in Illinois

The Illinois Commerce Commission on Apr. 20 authorized the Deer Creek Telephone Co. to issue $82,000 of first mortgage notes to Stromberg-Carlson Co. and to issue 130 shares of common stock at a par value of $100 per share.

The Deer Creek company was also given permission to purchase the Beason Telephone Co. (TELEPHONY, Apr. 15).

•

In another sales approval, Palestine Telephone Co. was granted permission to purchase the Porterville Telephone Co., Peoria (TELEPHONY, Mar. 25).

Iowa Company Bought by C. C. Pearce & Others

Transfer of controlling interest in the Wright & Franklin County Telephone Co., Dows, Ia., to C. C. Pearce and associates of Riceville, Ia., was reported on Apr. 13, at which time over 75 per cent of the company's outstanding stock had been pledged for sale.

Actual transfer of the stock will take place on or before July 1.

Mr. Pearce, who is president of the Farmers Telephone Co., Riceville, plans to convert the Dows exchange to dial.

Missouri High Court Denies Rehearing in Use Tax Case

The Missouri Supreme Court, it was reported on Apr. 18, without comment, denied further hearing on its decision knocking out major exemptions in the state's use tax law.

New hearings had been sought by the Southwestern Bell Telephone Co. and five railroads in Missouri which claimed they were discriminated against because of the exemptions. The six companies sought to have the entire law declared unconstitutional.

It was contended by the railroads that the use tax law delegated unwarranted power to tax to the judicial branch of the government. This argument was made against a clause in the law providing that if any section of the law was declared unconstitutional, the rest of the act should stand.

Southwestern Bell maintained that if exemptions in the use tax were unconstitutional, then the sales tax has been unconstitutional; because it, in effect, exempted sales outside the state for use inside Missouri.

Meanwhile, pending in the Missouri legislature is a bill that re-drafts the sales and use tax laws into a single act, with the complained-about exemptions applicable both on goods bought within and without Missouri.

Cal. Company to Seek Purchase Authorization

The McCloud Telephone Co. and the Western California Telephone Co., Los Gatos, have announced that they are seeking California Public Utilities Commission approval for the sale of the McCloud company.

Western California proposes to install a new dial system at the McCloud exchange, which would provide subscribers with direct distance dialing.

S. C. Cooperative Gets Approval for Rate Increase

The Palmetto Rural Telephone Cooperative, Inc., Walterboro, received authorization from the South Carolina Public Service Commission, it was reported on Apr. 6, for a general rate increase at all its exchanges.

The company reported it had incurred an operating deficit of $73,000 plus a $44,000 storm damage debt. The Palmetto Cooperative seeks to be in an improved position to obtain an REA loan, it was stated.

Pass N. Y. Credit Card Bill

New York Gov. Nelson Rockefeller has signed a bill making it a misdemeanor to obtain telephone service by

charging calls to another's number or credit card without permission, or by charging them to non-existent numbers (TELEPHONY, Feb. 18).

WE Suit Charges Transitron With Patent Infringement

The Western Electric Co. on Apr. 12 charged Transitron Electronic Corp., of Wakefield, Mass., with patent infringement in a suit filed in the United States District Court for the District of Massachusetts.

The suit charged that Transitron has infringed five separate Bell System patents relating to semiconductor devices such as transistors and diodes. It seeks injunctive relief against Transitron's semiconductor operations, plus monetary damages.

Western Electric acts as licensing agency for all patents granted to Bell System companies and currently maintains patent licensing agreements with more than 100 foreign and domestic manufacturers of semiconductor devices.

Negotiations between Western Electric and Transitron have continued over the past four years in an effort to reach a patent licensing agreement in the technical areas involved in the suit.

Transitron Electronic Corp. and other domestic manufacturers of semiconductor devices already have certain royalty-free patent licensing agreements with Western Electric for early transistor applications under the terms of a consent decree rendered on Jan. 24, 1956. The decree required that U.S. patents of Bell System companies issued prior to Jan. 24, 1956 be made available by Western Electric on a royalty-free basis. Patents issued to Bell System companies since the date of the consent decree are required to be licensed at reasonable royalties.

Patents involved in this case include: Pat. Nos. 2,757,324 and 2,790,940, both of which relate to silicon diodes; Pat. No. 2,792,538, which relates to certain alloyed semiconductor devices; Pat. No. 2,950,425, which relates to certain diffusion techniques; and, Pat. No. 2,802,760, which relates to oxide masking processes used in the manufacture of semiconductor devices.

Illinois Credit Card Bill

A bill introduced in the Illinois House of Representatives would make it unlawful to defraud telephone and telegraph companies by charging calls to a number or credit card without authority, charging to a non-existent number or credit card, or using a code or pre-arranged scheme to send or receive information.

GT&E Telephone Operations Set New Records

Revenues and net sales of General Telephone & Electronics Corp. for the first quarter of 1961 totaled $287,672,000, which was slightly below the corresponding 1960 period, but "an upward trend is anticipated during the balance of the year," Donald C. Power, GT&E chairman and chief executive officer, told the annual meeting of GT&E stockholders. The meeting was held in Gloversville, N. Y.

Revenues of $124,547,000 from telephone operations were 9 per cent ahead of a year ago and the highest of any quarter in the company's history "because of continued growth in telephone service," Mr. Power said. Manufacturing sales of $163,125,000 for the period were below a year ago because of lower demand for some consumer and commercial products due to the business recession, but sales showed an upturn during March and April, he reported.

Net income from telephone operations during the period set a new record for any first quarter, but decreased net income from manufacturing operations caused consolidated net income to be lower than a year ago, the GT&E chairman said. Net income totaled $15,481,000, and earnings per common share equaled 22 cents on the 70,600,000 average shares outstanding during the quarter, as compared with 26 cents on the substantially lower average of 66,902,000 shares a year ago.

At the meeting, the shareowners voted authority for the corporation to issue and sell up to 100 million dollars principal amount of convertible debentures as required for construction and expansion.

Reviewing the company's rapid growth in recent years, Mr. Power pointed out that net income for 1960 exceeded total sales and revenues in 1950. Over that period, revenues and net sales have increased from about 70 million dollars to 1,178,000,000 dollars, and net income from 4,136,000 to 72,430,000 dollars.

Mr. Power pointed out that the GT&E telephone manufacturing subsidiaries will invest approximately 269 million dollars in new plant and equipment in 1961, and that "over the next seven or eight years," total new investment will amount to at least 2 billion dollars. At the 1960 year-end, he added, total investment in telephone plant was more than 1.8 billion dollars, equal to $388 per telephone.

He stated that there now are 26 do-

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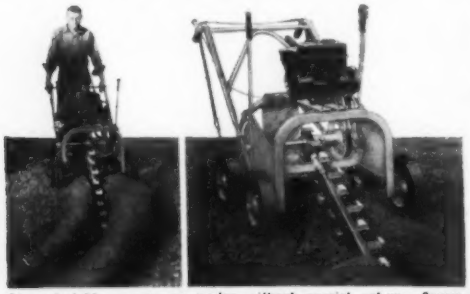

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mestic telephone operating companies in the General System, serving more than 4.1 million telephones in 5,600 communities in 31 states. Three subsidiaries in British Columbia, the Dominican Republic, and Haiti serve more than 570,000 telephones, bringing the system-wide total to more than 4.7 million.

Reviewing the General System's manufacturing operations, Mr. Power said that over the past 10 years "these activities have grown and diversified to become one of the leading industrial groups in the world."

Pointing out that manufacturing operations 10 years ago consisted of 300 employes and sales of about 8 million dollars, the GT&E chairman said the group now has sales volume "approaching three-quarters of a billion dollars" and about 50,000 employes.

Turning to space communications, Mr. Power said that the General System believes a satellite system carrying telephone conversations, global television and data transmission is economically and technically feasible. "A satellite system should be established as soon as possible because the world is growing so fast that present-day communications will be outmoded before we know it," Mr. Power commented.

In the area of national defense, Mr. Power reported that the current backlog stands at about 65 million dollars, a total that is expected to show a steady increase. Defense business, which totaled 140 million dollars in 1960, is running at about 20 per cent of manufacturing net sales, a percentage that is not expected to change significantly because of anticipated increases in non-military sales.

Citing the system's activities in "communications and electronics projects of a highly advanced nature with strong future potentials," Mr. Power said that among the major projects are communications systems for Minuteman long-range missiles and Polaris missile-launching submarines. Other current projects include a completely transistorized electronic computer known as "MOBIDIC" and electronic countermeasures systems.

The shareowners meeting was held in Gloversville in keeping with GT&E's practice of holding its annual meetings in different parts of the country where manufacturing or telephone operations are located. Gloversville is in the area served by General Telephone Co. of Upstate New York, which has its headquarters in nearby Johnstown.

AT&T's Chicago Meeting Sets Attendance Record

More than 20,000 shareholders were in attendance on Apr. 19 at American Telephone & Telegraph Co.'s first annual meeting held outside New York, making this the largest stockholders' meeting in corporate history.

The attendance shattered AT&T's record of 11,900 two years ago in New York and topped the company's pre-meeting estimates.

There was standing room only at Chicago's new lake front convention hall, McCormick Place, with every seat in the hall filled. Several thousand shareholders sat in another room equipped with loudspeakers.

Frederick R. Kappel, AT&T president, said that the company's rate of growth increased rapidly in early 1960 and then slackened as the year progressed. He stated:

"There was a slight pickup in March (1961) and so far in April this improvement has continued. I doubt that we shall add as many new telephones this year as last. Nevertheless I am confident the gain will be substantial, and that we shall also have a very respectable growth in the number of long distance telephone conversations."

Net gain in telephones for January and February was at an annual rate of 1.8 million. For March and so far in April the net gain in telephones increased to an annual rate of 2.3 million. In 1960 the total gain for the year was 2,793,000.

Commenting on the company's recent offering of new stock, Mr. Kappel called it an "unqualified success." The subscription period ended Apr. 14. Preliminary figures indicate that the company obtained close to 960 million dollars in new capital.

On the question of earnings, Mr. Kappel stated that they would "appropriately support our financing." The company, he said, would probably have to raise about one billion dollars a year in new financing over the next few years.

For 1961, construction expenditures will total about 2.5 billion dollars as compared to 2.6 billion in 1960. This outlay is earmarked to take care of growth, broaden services and products and increase operating efficiency.

Mr. Kappel emphasized that there are no plans to separate Western Electric from AT&T "now, in the near future, in the distant future, or at any time whatsoever." Western Electric is an integral part of AT&T, he said, and to separate it "would be a dismemberment of this business and a major mis-

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fortune to our shareholders as well as to our customers."

Stressed by Kappel was AT&T's interest in satellites for public communications service. He said:

"We have made definite, and we believe sound, proposals for a satellite communications system. What we are seeking today, and have been seeking for several months, is for some branch of the government to provide the facilities to launch experimental satellites that we would be glad to pay for."

These satellites would be used, Kappel stated, to connect communication networks in the U. S. with the networks in other countries and to provide international overseas service.

Provision of launching facilities by the government would enable AT&T to move quickly on the communication satellite system.

The system calls for a number of satellites orbiting several thousand miles out in space. Each would contain equipment to receive, amplify and retransmit communication signals. Continuous service to Europe could be provided with 20 to 25 such satellites and world-wide service with about 50.

"We are confident," Kappel remarked, "that in a few years—three or four or maybe less—we could have a full scale system in operation but the immediate need is to get a bird in the air for testing."

Asks OK to Operate in Ill.

Filed with the Illinois Commerce Commission on Apr. 3 was the application of Viola Home Telephone Co. for a certificate of convenience and necessity to construct, operate and maintain a telephone company; and also an application for authority to issue 4,920 shares of its $10 par common stock of an aggregate par value of $49,200. These requests were set for Apr. 25 hearing.

Authorize Kansas Rate Raise

JBN Telephone Co., Inc., Netawaka, on Apr. 12 was given permission by the Kansas Corporation Commission to raise its rates by $10,692 at its six exchanges. Lloyd Shank, chief engineer for the commission, said the raise was allowed "because the company has been operating in the red."

Approve Sale in Minnesota

The Jasper Telephone Co. on Apr. 17 was given permission by the Minnesota Railroad & Warehouse Commission to sell all its telephone property to the Red Rock Telephone Co., Hector. The Jasper company serves 862 stations in Jasper, Hardwick, Ihlen and Trosky.

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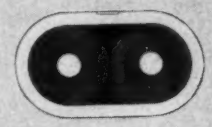

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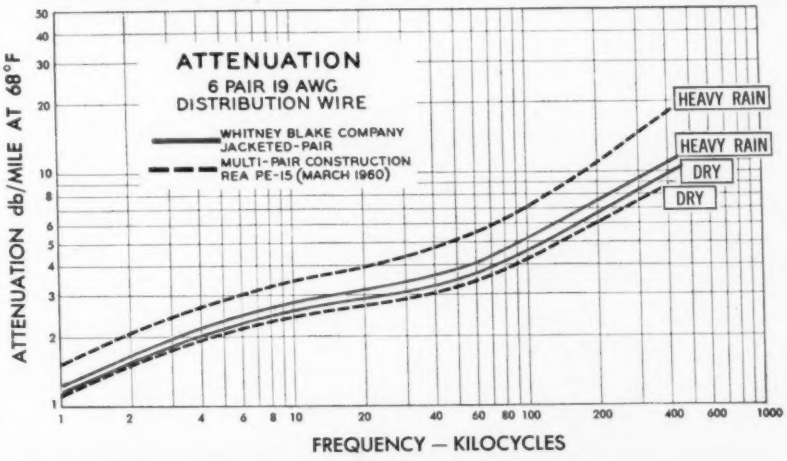

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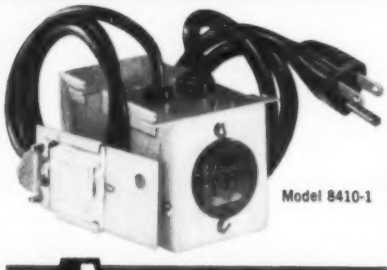

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Warner GT&E Head; Mitchell Elected Vice Chairman

Leslie H. Warner has been elected president of General Telephone & Electronics Corp., according to announcement by Donald C. Power, chairman and chief executive officer. Mr. Warner succeeds Don G. Mitchell who has been elected vice chairman of the board, Mr. Power announced.

L. H. WARNER

A native of Corsicana, Tex., Mr. Warner attended the University of Wichita, from which he was graduated in 1935 with an AB degree in electrical engineering and business administration. He was graduated from the Harvard Graduate School of Business Administration with an MBA degree in 1937.

He started his career in the telephone industry as a trainee in the Long Lines department of the American Telephone & Telegraph Co. immediately after his graduation from high school in June, 1929. While working as a full-time employe of the department, he attended the University of Wichita, and subsequently took a leave of absence from AT&T to attend the Harvard Business School.

In 1937, Mr. Warner joined Automatic Electric Co., which subsequently became a subsidiary of General Telephone Corp., and has been associated with the General System ever since. During his career, Mr. Warner has served at various times as president of several of the principal manufacturing and sales subsidiaries of the General Telephone Corp. In 1957, he was elected executive vice president - manufacturing, of General Telephone Corp., which was re-named the General Telephone & Electronics Corp. upon the merger with Sylvania. In March, 1960, Mr. Warner was elected a director of the corporation.

A member of the Sylvania organization for 17 years, Mr. Mitchell was elected president and a director of General Telephone & Electronics on Mar. 5, 1959, the effective date of the merger of Sylvania into General Telephone.

Born in Bayonne, N. J., Mr. Mitchell attended the University of Cincinnati for two years, studying mechanical engineering; and the University of Florida for two years, specializing in mathematics.

He joined Sylvania as vice president in charge of sales in 1942, and advanced successively to executive vice president in January, 1946, and to president in May of the same year. He subsequently was elected to the additional post of chairman, and relinquished the presidency of Sylvania when elected president of GT&E.

D. G. MITCHELL

After serving with McGraw-Hill Publishing Co. and with Niagara Hudson Power Co., Mr. Mitchell became manager of the marketing division of American Can Co. in 1933. He joined Marshall Field & Co. in 1937 as general sales manager of the manufacturing division; and in 1939, he became vice president in charge of sales of the Pepsi-Cola Co. He left in 1942 to join Sylvania.

Alaska Firm Expands Services in U. S.

John E. Field, president of Communications Engineering, Inc. of Anchorage, Alaska, has announced that the company is expanding its consulting services to include the entire United States.

Mr. Field stated he will establish what he designated the firm's "South 48" offices in San Francisco this month. He also announced the establishment of other offices.

Harley Rolfe, vice president, will be

in charge of the office in St. Louis, Mo.

Ed McCullough, former project manager of RCA in Anchorage, will be manager of the eastern office in Allentown, Pa.

William Swezey, director of engineering of Communications Engineering, will serve in the same capacity in the St. Louis office.

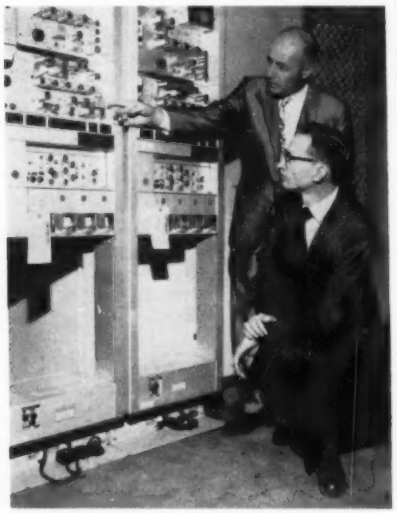
Mr. Field said the expansion of the company's activity to the "South 48" results from recognition given its staff for work in utilizing radio to link telephone systems.

Trans-Alaska Telephone Co., which Mr. Field also serves as president, serves 14 Alaskan communities from Kotzebue above the Arctic Circle to Seldovia on the Kenai Peninsula with modern telephone systems.

Among high points in Trans-Alaska's brief history is its development of 4,380-foot Mount Susitna, 36 miles west of Anchorage, as a micro-wave and VHF relay center.

The roadless mountain-top site is maintained and resupplied entirely by air. The first plane to land on the mountain was piloted by Mr. Field who delivered four cases of dynamite. A former Philco field engineer, he has worked on communications in South and Central America, the Middle East, Africa and Europe.

In its new U. S. operation, Mr. Field's firm will specialize in communications engineering services for the Independent telephone industry. It



John E. Field (standing), president of Communications Engineering, Inc., points to an element in new four-channel VHF radio link which will soon connect Alaska's King Salmon and Dillingham telephone exchanges, as vice president Tom Harris looks on. Company to establish three new offices in "South 48" to serve U. S. Independent companies. (Ward Wells photo)

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is now working on contracts in McCall, Ida., and Scotts Bluff, Neb., Mr. Field said.

He stated that General Electric Co. has named Communications Engineering as a national manufacturer's representative to the Independent telephone industry for its new five-channel mobile telephone units.

Eastern Pre-Cast Appoints Sheckells As Manager

John R. Sheckells has been appointed general manager for the Eastern Pre-Cast Corp., Tullytown, Pa., manufacturers of "Condex," concrete multiduct conduit, according to Lynn Hill, company president.

Mr. Sheckells, who has had 44 years of experience with the Chesapeake & Potomac Telephone Co. of Maryland, will be in charge of operations in the Eastern seaboard states.

While with the C&P company, Mr. Sheckells spent considerable time on the engineering and construction of conduit, and in outside plant operations. He held the position of division construction superintendent and also served as division plant engineer of Baltimore.

Mr. Sheckells will be located at Eastern Pre-Cast Corp.'s office at Tullytown.

J. R. SHECKELLS

Henkel Is Technical Aide, Lindsay Telephone Supply

George F. Henkel has been appointed technical advisor to the sales staff of The Lindsay Telephone Supply Co., Northfield, Ohio. His appointment was announced by T. C. Lindsay, president.

Mr. Henkel will assist the Lindsay sales representatives in both the Northfield, and Atlanta, Ga., branches by introducing new electronic equipment for the telephone industry.

G. F. HENKEL

Before joining Lindsay, Mr. Henkel was associated with the Ohio Bell Telephone Co.

Kwik-Mix Names Distributors In Michigan, Nebraska

Malette Construction Equipment Co., Sault Ste. Marie, Mich., has been appointed a distributor for all of upper Michigan and the northern part of lower Michigan by the Kwik-Mix Co., manufacturer of material handling and mixing equipment. Kwik-Mix is a division of Koehring Co.

The Malette company is located at 700 Seymour St., Sault Ste. Marie. Harold Malette is president and sales manager.

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Kwik-Mix, which also manufactures Ka-Mo earth boring and drilling equipment, has appointed Anderson Equipment Co., Omaha, as distributor of the Ka-Mo line for the entire state of Nebraska and the western third of Iowa.

The Anderson company is located at 13th and Farnum Sts., Omaha. President of the company is A. C. Anderson; vice president is J. C. Anderson, Frank Davis is sales manager. K. R. Jensen is manager of the branch office located at 300 South Virginia St., Sioux City, Ia.

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Named by Kwik-Mix as a Ka-Mo distributor for the entire states of Arkansas and Mississippi plus the western third of Tennessee was Choctaw Inc., Memphis, Tenn.

Choctaw is located at 1184 Tupelo St., Memphis. James L. Nellis is vice president and Chris T. Arnoult sales manager.

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April 19, 1961.

IN THE NATION'S CAPITAL

Continued from page 14

equipment investments, Kennedy told Congress that "the proposed investment credit would be superior, in my view, for a number of reasons."

One reason, the President stated, is that depreciation methods have an important function in determining taxable income and should not be altered or manipulated for some other purpose; that is, for giving incentives. Kennedy said his tax credit plan also is superior to proposed outright cuts in corporation taxes, because it will apply to partnerships and individual businesses as well as corporations.

One other point that might be mentioned (of special interest to telephone companies) is the proposal to set up a 20 per cent withholding tax on dividends and interest paid on corporate securities. This has been a hardy perennial proposal for a number of years, but the House Ways and Means Committee has always shied away from it as being impractical. You can get so-called experts to testify on both sides of the question as to whether it would be more trouble than it would be worth.

On the one hand there is no doubt that many people receiving dividends are not reporting them as income and the government has very little chance of checking up on them. But on the other hand, the people who do this, in most instances, are small shareholders so that the additional tax received might not amount to much more than the cost of setting up the withholding machinery. Certainly it would be a new and bigger bookkeeping headache for business corporations to start withholding, and accounting for taxes on all dividends and interest paid.

Regulatory Reform Moves Along

The generally favorable reception given to President Kennedy's message to Congress on reorganizing and approving the work of the federal regulatory commissions already has resulted in a number of bills being introduced. None of these are of particular interest to telephone companies, since most of them had to do with amending the Natural Gas Act. The interest of the telephone industry will probably lie in what the President has in mind by way of reorganizing the Federal Communications Commission. The special message to Congress on this had originally been promised on Apr. 20 but, on account of the Cuban crisis, it had to be put off until later this month, moving it beyond the deadline of this department.

There have been no advance reports about what the President has in mind for reorganizing the FCC. He is likely to follow the pattern already announced for the Federal Power Commission, encouraging the delegations of minor decision-making to examiners and organizing the commissions into panels. The FCC already has seven members, so the earlier proposal to expand the FCC membership from five to seven would not apply. On the whole, President Kennedy has so far only dealt with less controversial, generally acknowledged reform proposals, mainly in the procedural areas. If he asks no more than this during the present session of Congress, he should have little difficulty obtaining the legislation he desires.

The President's recommendations along these lines have been very cautious. He has asked for considerably less than was recommended either by his own chief adviser, Dean Landis, or by the special congressional watchdog committee report filed earlier this year. He has drawn heavily on the studies of

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the special committee headed by Judge Prettyman of the District of Columbia Circuit Court of Appeals which dates from the Eisenhower administration.

It is noteworthy that the President has not worried too much over the much-chewed bone of ethical procedures. Discussion about public officials being more careless or less honest than they should be, makes newspaper copy, but such talk is cheap and the President knows it. The real difficulty is trying to legislate morality and it cannot be done. He knows that, too. So he has simply recommended the enactment of general standards of good conduct, but has emphasized more forcefully the need of better agency personnel. He obviously thinks that the way to get better ethics is to get better people on the job.

He also lays stress on the importance of the commission chairman being a real boss instead of just a presiding officer at commission meetings and hearings. There is a lot of difficult housekeeping and hard work in running a modern federal regulatory commission, which has little to do with regulatory decisions, as such. It takes down-to-earth management in such routine things as seeing that proper people are on the job turning out their full quotas of satisfactory work. When such controls and decisions are left to the majority rule of a full commission, it is something like trying to build a house or run any other kind of a business with a committee. The prime vice of bureaucracy is to drift, and the tendency to drift is greatly increased when responsibilities of leadership are blurred and diffused among five or seven personalities.

One other form of concentrating responsibility favored by Kennedy is to have the commission members write their own opinions. To get more time for this and other truly top-level activity, the President would have agency members delegate more routine business to staff personnel. It stands to reason that when a commissioner has to sign his own name to an opinion he is going to give it more thought, more personal research and style, and other attention than if the whole thing were "kissed off" on some anonymous opinion-writing machinery.

The reason why the decisions of the Federal Communications Commission heretofore have been such nightmares to reporting systems, printers, proofreaders, etc., has been a tendency to confuse the writing of decisions and real opinions with a routine, almost mechanical, recital of facts and "findings." The automatic opinion-writing subordinate does not want to miss anything, or be accused of overlooking anything, so he takes no chances. He dumps everything but the kitchen sink into the so-called opinion of the commission, which results in endless repetition of what has already been printed in the record or briefs and whatnot.

One may look to decisions by members of the United State Supreme Court for models of terse, well-reasoned opinion writing. Some excel others in this respect, and there is probably none on the present court to equal the highly readable and literary flavor of the late Justice Holmes; but the fact remains that almost any decision by a member of the present Supereme Court would read like an exciting novel compared with the dreary output of some of our regulatory commissions.

Potentially most important of all is President Kennedy's summons of an administrative conference in Washington. Judge Prettyman's committee has laid some excellent groundwork for such a meeting. The hope is that it would mature into a permanent organization on the model of the Judicial Conference. That body has served the federal court system well and a standing administrative conference might improve not only procedure and productivity among the agencies, but morale too.

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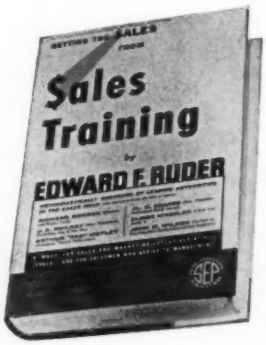

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COMMUNICATIONS—COMPONENT OF DETERRENT FORCE

Continued from page 16

at or near the alternate or emergency headquarters. This duplication can be done by microfilming or any other acceptable reproduction process.

Preservation of vital records which can be produced on short notice is extremely important to the functions of the emergency headquarters (Plan 2, above). This is particularly true in the event the normal headquarters is lost. It does not require very much imagination to visualize the magnitude of our difficulties, should we be faced with a national emergency, if all of our operating records were lost.

This plan should include an arrangement for periodic review of the stored records, so as to keep them relatively current.

Protecting Essential Services

The primary objective of this plan is to provide for continuity of essential services. Such a plan must include dispersion considerations, along with rapid restoration of these services, not only for the military and OCDM, but for federal, state and local government's high administrative channels, along with certain essential key industries and individuals. Some of these protective measures are:

(1) Plans for alternate routing and emergency patching of major circuits, particularly private line services, so as to bypass the damaged or lost sections of plant. For the most part, the major or backbone routes are protected from complete loss by the microwave bypass facilities, mentioned earlier in this article.

However, emergency patching and rerouting plans for the lesser circuit groups must be included in the over-all dispersal scheme.

(2) A plan for providing toll service to essential and/or key subscribers, in the event it is necessary to evacuate toll operating personnel. Under this plan such subscribers would be provided with an arrangement whereby they could reach a remote, non-target toll operating point, to complete important toll calls.

This arrangement would be in the order of an FX (foreign exchange) service. This matter presents no problem for dial areas where customer toll dialing is in force. This is an operating problem that must be worked out in accordance with local conditions.

(3) Plan for line load control for local exchange service, so as to guard against blocking the central office, resulting from an excessive service demand during an emergency. Under this plan essential and/or key subscriber lines would be listed for unlimited service during an emergency. All other subscriber lines would be divided into perhaps two groups, which could be alternately limited to incoming service only.

Ordinarily, the essential or key lines for any given central office area, would represent a relatively small per cent of the total lines served. To this group could be added such lines as determined by the commercial department, that in their opinion would be in the best interest of the community, but not in excess of 20 per cent of the total central office lines for unlimited service. The balance of the subscriber lines would be divided into two groups of 40 per cent each, where the limited service feature would be applied alternately on a schedule of approximately 30 minutes each.

Under such an arrangement the central office would never be compelled to serve more than 60 per cent of its total lines for any given period, and under

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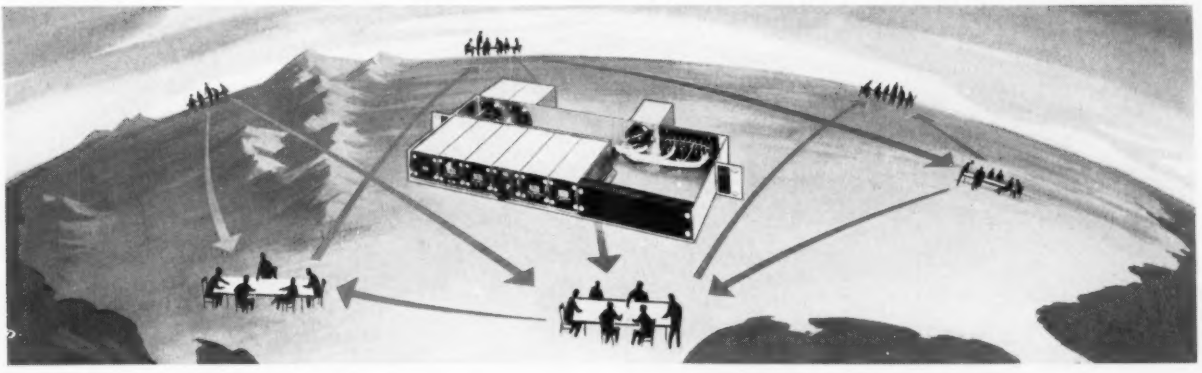

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severe conditions the load could be confined to 20 per cent. Details of this plan would be worked out between the commercial and traffic departments; it presents a problem that would vary with the type and size of the central office and the operating area involved. For multi-office areas, each central office would be subjected to the line load control feature.

(4) Plan for restoration of essential services calls for pre-disaster thinking and would be based on priorities established for the respective services involved. It is true that, under disaster conditions, it may be necessary to improvise, and, in general, play the operation "by ear." However, it is essential to have a basic plan which, under the worst possible conditions, would serve as a guide for any improvising tactics. Restoration of essential services, to be effective, will be competing with a short time-factor and whatever can be done in advance of a disaster will work to reduce the important delay time.

Civil Defense Activities

Plans for participation in Civil Defense activities present a real challenge to the operating telephone companies. The responsibilities of a civil defense director are much greater than normally realized. During times of dire emergency the director's key tool will be effective communications.

Normally his communications demands will be in direct relation to his plan of operations. However, because of the possibility of conditions that could very well be beyond the wildest imagination, it may be necessary on very short notice to provide facilities that depart materially from standard practices. The most effective way of coping with this problem is to have a telephone company representative on the director's staff.

Under such an arrangement the telephone company representative would be familiar with the director's plans and could therefore be helpful in resolving the problem of communications requirements in the best interests of both Civil Defense and the telephone company. This is particularly true from the company's position, since under conditions of great stress, wasteful demands may be made under civil authority that could prove detrimental to other essential service requirements. Under the guidance of an experienced telephone company representative, it is possible to obtain the most effective utilization of available facilities for all concerned.

By the same token, a telephone company representative should be assigned to the state director of civil defense, for the purpose of coordinating the various demands of the city, county and state civil defense directors, as well as full coordination or liaison of the several telephone companies that might be involved.

This latter is a matter that must be worked out by the various telephone companies within the state.

Security

Because of the importance of communications in all of its various aspects associated with the over-all deterrent force, certain security measures are essential. First of all, loyalty and integrity of the telephone company employes should be beyond question. In many instances the telephone companies are furnishing services that are extremely vital and as such require top protection. Part of this protection comes from avoiding unnecessary discussion of such services, together with the location of the plant and equipment involved, particularly with unauthorized persons. The "need to know" should be the controlling factor.

There are also times when the company participates in the engineering and over-all planning of military re-

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quirements, which often involves the telephone company being furnished classified information pertaining to such projects. Obviously this class of information must be given to the operating personnel, who are obligated to preserve its security.

In the case of the larger companies, this security is extended to its own plant, equipment and buildings, as a guard against sabotage. This includes indiscriminate use of plans that show the type and location of vital plant and equipment; e.g., important toll routes, repeater stations and heavy underground conduit runs.

I am sure it is obvious that without dependable communications our recognized deterrent, both military and civil, would crumble. Also, these communications must be backed up by an alert organization that seriously considers all of the administrative aspects required to keep these communications intact.

Quoting Leo H. Hoegh, director of the Office of Civil & Defense Mobilization:

"Militarily we are stronger than we have ever been in our whole history. We have excellent defensive capabilities, and we have tremendous retaliatory striking power. To make us strong as we should be however, we must match this with an equally strong nonmilitary defense."

It is true that our deterrent potential serves to forestall direct enemy action. However, it is always possible that ever-changing developments and conditions could cause the enemy to evaluate the balance of power in his favor, which could result in a decision to strike. It is also possible that an attack could be the result of accidental action, e.g., a false radar warning, an accidental overflight, an unintended spread of limited wars, or a misinterpretation of the action associated therewith, and *a failure in communications.* In the event of such action, we must not be caught unaware. If properly prepared, we should be able to deploy and retrench with a minimum loss and go into a recovery action that will result in victory. To accomplish this objective we must have an adequate *Civil Defense plan,* a plan that takes into account every conceivable contingency associated with an enemy surprise attack.

It is understood many telephone companies are working on a program designed along the lines of the seven points set out herein. However, it is feared that in some instances, the plan is not taken seriously, and there are perhaps some companies who have given no consideration whatever to such a program. It is realized, of course, that for the most part this type of Civil Defense program is more applicable to the larger companies, but certainly there are some phases that should appeal to even the smallest telephone company. At least, the seven points are worthy of consideration.

Turning our back on such activities is somewhat in line with the general public's complacent view of Civil Defense. It is an apathy no doubt resulting from the distasteful thoughts that go with the reason for Civil Defense. The specter of war and destruction is extremely unpleasant, but ignoring it won't make it go away. The survival and continuity of communications is a must.

IOWANS UNDERSCORE GROWTH

Continued from page 32

Fort Dodge; and E. B. Zerwas of Manning.

Named as honorary directors were: Henry B. Melick of West Liberty; Loyd F. Morrison of Grinnell; and W. H. Fowler of Pella.

The board re-elected these officers to serve for 1961-'62: President, Mr.

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Thompson; first vice president, A. W. Sanders; second vice president, E. B. Zerwas; and as executive secretary, William F. Miller of Des Moines.

In all, attendance at the 1961 convention totaled more than 1,000 members, and was reported to be the largest in the Iowa association's history.

ABC OF THE TELEPHONE

Continued from page 30

(2) Scheduling vehicle replacements.
(3) Analyzing fleet operating costs.

Drivers Affect Economy

The fleet manager should keep in mind, when analyzing fleet operating costs, that the driver has a considerable amount of control over how efficiently a given fleet vehicle operates. For example, the vehicle assigned to a driver who continually makes jack-rabbit starts, quick stops, or who idles the engine for long periods—just to operate a heater—will cost more to operate than the unit assigned to the driver who accelerates more slowly and who habitually drives and stops slower.

Perhaps the most fundamental and easiest to understand suggestion for efficient automobile operation is the theme, "always drive the green light," which was developed some years ago by Ben Ikert, who for many years has been recognized as one of the world's leading automotive authorities. In "always drive the green light," Mr. Ikert explains the cost saving and fuel savings advantages of:

(1) Gradual efficient acceleration.
(2) Adjusting vehicle speed to the flow of traffic.
(3) Gauging vehicle speed to reach traffic signals when the light is green.

NOTE: The good driver pretty well senses that a green light some distance ahead will be red by the time the vehicle reaches the intersection. The good driver, instead of speeding and taking a chance on getting through on the green, will gradually reduce speed and —generally with the vehicle still in motion—will cross the intersection when the signal again changes to green.

Still Good Advice

Yes, "always drive the green light" was good advice a number of years ago, and the same sensible driving attitude will save a good many fleet operating dollars today.

Vehicles with power take-off equipment usually deliver fewer miles per gallon of gasoline. Thus, due consideration must be given to how a car or truck is used in service before making a final decision on the operating efficiency of the unit.

Maintenance Important

Maintenance of automobiles and trucks is a most important part of fleet operation. A well-rounded maintenance program can cut fleet operating costs. Perhaps of greater importance is keeping the fleet in top shape to give the service needed to provide transportation for the communications job.

The problem of service will vary according to the needs of an individual company. Some companies handle fleet service themselves in much the same manner as they care for typical building service functions. Other companies have most of the maintenance handled by an automotive service shop or shops in the community. In between the companies handling their own fleet service, and those farming out the work, are companies that do some of the maintenance and contract the rest to independent automotive service shops. The fleet manager and his staff should understand the various maintenance functions, regardless of where the actual work is performed.

Some of the maintenance services to be discussed in future articles in this series are:

(1) Engine tune-up and economy maintenance.
(2) Lubrication and air system service.
(3) Tire service.
(4) Steam cleaning and body service.
(5) Engine rebuilding.
(6) Body finishing.

These articles on fleet maintenance will help telephone companies review their present standards for fleet operation and service. They should also be helpful for those companies giving consideration to handling their own fleet service. Another purpose of the articles will be to help fleet managers better understand today's concepts of efficient, effective automotive service.

(To Be Continued)

Seely Retires from Board of Oswego County (N.Y.) Corp.

The retirement of William A. Seely as chairman of the board of the Oswego County Telephone Corp., Fulton, N. Y., was announced at the company's annual meeting held on Apr. 12, in Fulton.

Elected a director of the corporation in 1928, Mr. Seely has since that time served as vice president and president, and in 1957, was elected chairman.

In addition, Mr. Seely is president of the Chenango & Unadilla Telephone Corp., Norwich, N. Y., and a past president and director of the New York State Telephone Association.

Selig Heads Division Sales, National Pneumatic Co.

Edward B. Selig has been named general sales manager for three divisions of National Pneumatic Co., Inc., Boston, Mass.

He will direct all marketing activities for the Telephone division, which manufactures ringing generators, tone equipment and interrupters; as well as for the Janette division, and the Holtzer-Cabot Motor division.

A graduate of Northeastern University and of the Lowell Institute of MIT, Mr. Selig has been with National Pneumatic since 1952, most recently as sales manager for the Holtzer-Cabot division.

He is a member of the ISA and is the company's voting representative in the National Electrical Manufacturers Association (NEMA).

Discern Chaff from Grain

"It is no proof of a man's understanding to be able to confirm whatever he pleases; but to be able to discern that what is true is true, and that what is false is false, this is the mark and character of intelligence."—SWEDENBORG.

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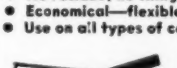

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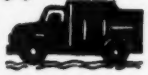

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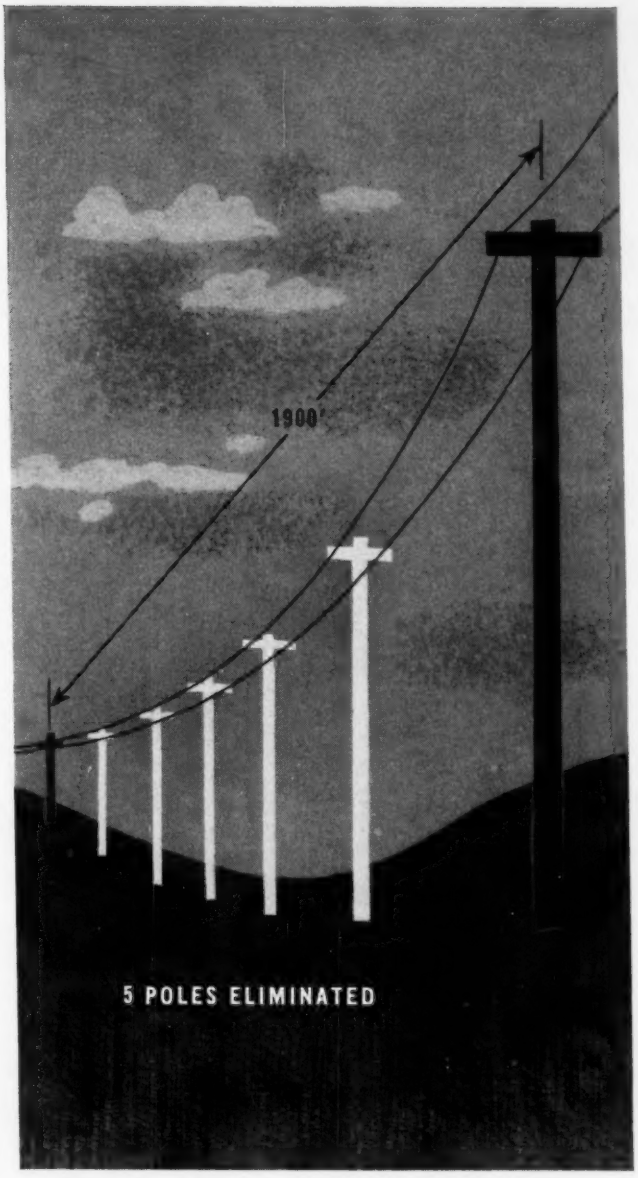

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